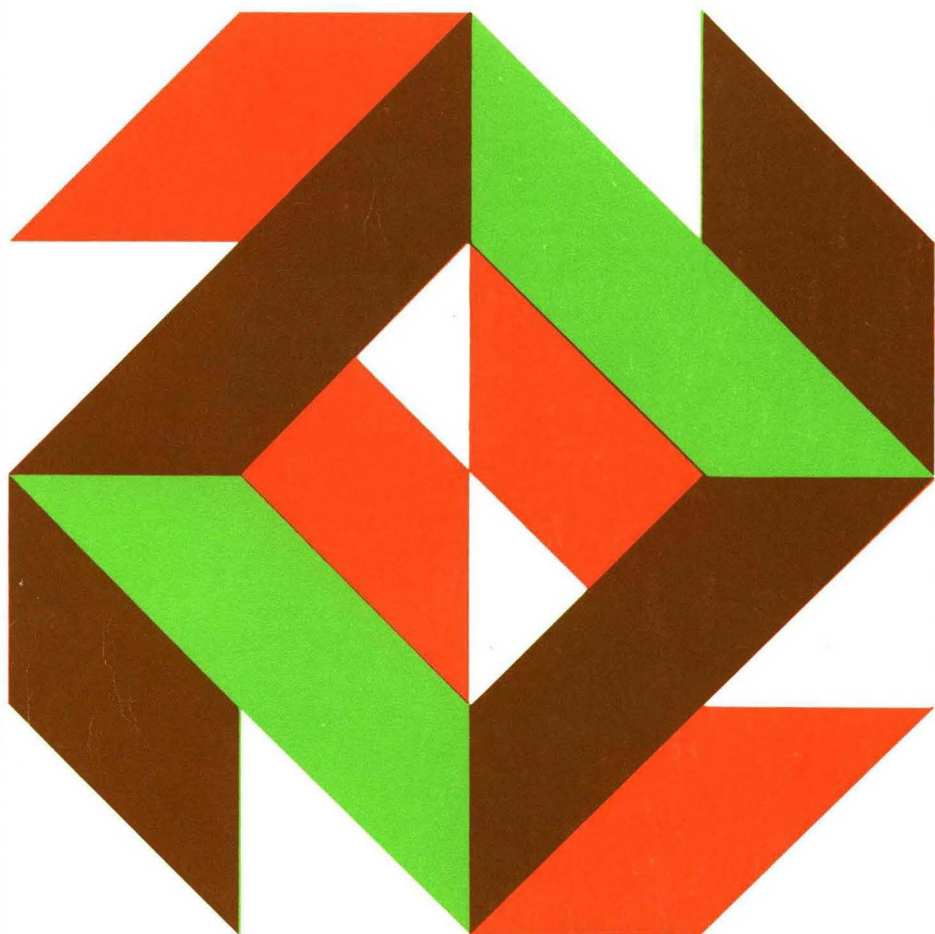


# UNIVERSITY OF MINNESOTA BULLETIN

1977-1979  
JUNE 30, 1977

## DULUTH GENERAL BULLETIN



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# General Bulletin

UNIVERSITY OF MINNESOTA, DULUTH

# How To Use This Bulletin

This bulletin is the official source of information about the University of Minnesota, Duluth. Use the index for reference to specific items.

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## COURSE LISTING INFORMATION

The following information is provided as a guide to the interpretation of course listings in the collegiate sections of this bulletin:

Courses numbered 1000 to 1998 are lower division courses and are primarily for freshmen and sophomores; courses numbered 3000 to 3998 are upper division courses and are generally restricted to juniors and seniors; courses numbered 5000 to 5998 are open to upper division students and students enrolled in graduate programs; courses numbered 8000 and above are open to students enrolled in graduate programs only.

A series of courses separated by commas (1001, 1002) may be taken in any order.

A sequence of courses separated by hyphens (1001-1002) must be taken in the order listed.

If no prerequisites are listed, there are none, except insofar as the course number indicates a minimum class standing requirement. When a course is listed as a prerequisite, it is assumed that an equivalent course may be substituted to meet the requirement.

When no abbreviated departmental prefix precedes the number of a course listed as a prerequisite, the prerequisite course is in the same department as the course being described.

The following standard symbols are used throughout the course descriptions in lieu of page footnotes:

- \* Courses in which graduate students may prepare Plan B projects.
- † All courses preceding the dagger must be completed before credit will be granted for any quarter of the sequence.
- § Credit will not be granted if the equivalent course listed after the section mark has been taken for credit.
- ¶ Concurrent registration is allowed in course listed after the paragraph mark.
- # Consent of instructor is required prior to registration.
- △ Consent of department offering course is required prior to registration.

Since the University of Minnesota operates under a quarter system, all credits shown indicate quarter credits.

A variable-credit course offering with the credits separated by a hyphen (1-3 cr) is offered for variable credit at the student's option.

A variable-credit course offering with the credits separated by the word "to" (1 to 4 cr) is offered for variable credit at the department's option. Students should consult the current *Class Schedule* for information concerning available credits.

## BULLETIN USAGE

A student may fulfill degree requirements identified in any combination of UMD bulletins that have been in effect since entering college, junior college, or university, and within 8 years previous to graduation from UMD.

If a student reenrolls at UMD after completing a baccalaureate degree, the student will be considered a new entrant and will have to complete the requirements listed in the bulletin in effect at the time of reenrollment or in a subsequent bulletin printed within 8 years previous to graduation from UMD.

# University of Minnesota, Duluth

## I. GENERAL INFORMATION

### PURPOSE AND ORGANIZATION

The University of Minnesota was established in 1851 by an act of the Minnesota territorial legislature. It is governed by an autonomous Board of Regents that enacts laws governing the institution, controls expenditures, and acts upon all staff changes. The board is composed of 12 individuals appointed by the state legislature. The president of the University is the ex officio head of the board who is directly responsible to the regents as chief executive officer of the University.

The University of Minnesota, Duluth (UMD), became a coordinate campus of the University of Minnesota by legislative act on July 1, 1947. The campus is administered by a provost, who reports directly to the president of the University.

### Mission of the Campus

As an integral part of the University of Minnesota system, the Duluth campus has the broad teaching, research, and service responsibilities of a land grant institution. In fulfilling these responsibilities, the primary role of the Duluth campus is to provide a broad and comprehensive selection of high quality undergraduate instructional programs. Its secondary responsibilities are to provide graduate, professional, and continuing education programs as well as promote significant research and service activities. In striving to fulfill its primary responsibility in undergraduate education, the campus endorses the following objectives:

1. Development of the art of critical thinking.
2. Examination of basic values in light of the thought and experience of humankind.
3. Preparation for leadership and social responsibility including tolerance of the ideas of others.
4. Encouragement of broad cultural and intellectual interests.
5. Development of effective communication abilities.
6. Development of vocationally useful abilities.

To help the student achieve these objectives, UMD offers opportunities for many kinds of educational experience. Individual growth depends largely on the use each student makes of these opportunities, including the advice of teachers, advisers, and counselors. UMD believes that growth is an individual process and that, although the results are not equal for all, education should encourage self-reliance based on self-understanding. Therefore, each student is required to assume final responsibility for his or her own academic progress and personal conduct.

The faculty expects every student to achieve a reasonable balance between



liberal and specialized education. To help the student achieve this balance, UMD has established a relatively flexible liberal education program, special academic and degree requirements, and virtually unlimited opportunity for individual study. The intellectual rewards of human achievement are readily available to those whose vision and scholarly interest prompt them to strive toward their limits of individual excellence.

In addition to classroom activities, students benefit from the educational opportunities offered through special lectures, concerts, the theatre, the library, the art gallery, the many organized student activities, and occasions for informal talks with friends, teachers, and counselors.

## **Academic Programs**

The University of Minnesota, Duluth, offers study opportunities in the following academic programs:

- Preprofessional programs of 1 or more years' duration in most of the professions.
- Two-year associate degree programs in liberal arts, dental hygiene, secretarial sciences, and vocational teacher education.
- A 2-year basic sciences medical school program leading toward the M.D. degree through transfer to the University of Minnesota Medical School, or another medical school.
- Four-year baccalaureate degree programs in accounting and business administration, fine arts, liberal arts and sciences, applied arts and sciences, social work, and preparation for elementary and secondary school teaching.
- Master's degree programs in art, biology, business administration, chemistry, communicative disorders, counseling, education, educational administration, English, geology, history, industrial safety, physics, and social work.
- A sixth year program and a 2-year specialist certificate program in elementary, secondary, and general school administration.

## **Organization of the Duluth Campus**

The Duluth campus is organized into three broad functional areas, academic administration, business affairs, and student affairs. Each area is headed by a vice provost who reports directly to the provost.

The academic units of the campus are organized into six colleges and schools, each headed by a dean who reports to the vice provost for academic administration. These collegiate units are the School of Business and Economics, College of Education, School of Fine Arts, College of Letters and Science, School of Medicine, and School of Social Development, and their programs are described in the collegiate sections of this bulletin. Academic support units, including the library, are under the jurisdiction of academic administration.

The business affairs office is responsible for financial records, collection of tuition and fees, disbursement of funds, hospitalization, insurance, parking and transportation, the transportation pool, real estate, inventory, payroll, and loan collections. The vice provost for business affairs supervises operation of the campus bookstore and plant, food, vending, printing, and police services.

The areas of admissions, records, testing and counseling, orientation and advisement programs, student financial aid, career planning and student placement, student activities and operation of the Kirby Student Center, student housing, and student behavior are areas under the administrative jurisdiction of the vice provost for student affairs.

## Accreditation

As a campus of the University of Minnesota, UMD's programs are fully accredited by the North Central Association of Colleges and Secondary Schools. They are accredited additionally by the National Council for Accreditation of Teacher Education, American Chemical Society, National Association of Schools of Music, American Association of University Women, Council on Social Work Education, Liaison Committee of the American Association of Medical Colleges and the American Medical Association, and Council on Dental Education of the American Dental Association.

## Statement on Human Rights

The Board of Regents has committed itself and the University of Minnesota to the policy that there shall be no discrimination on the basis of race, creed, color, sex, or national origin. In adhering to this policy, the University abides by the requirements of Titles VI and VII of the Civil Rights Act of 1964, Revised Order No. 4, Executive Orders 11246 and 11375, Sections 799A and 845 of the Public Health Service Act, and other federal regulations and pertinent acts of Congress.

It is also the policy of the University of Minnesota not to discriminate on the basis of sex in its educational programs, admissions, activities, or employment policies as required by Title IX of the Education Amendments of 1972.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 100 Church Street S.E., University of Minnesota, Minneapolis, Minnesota 55455, (612) 373-7969, or to the Director of the Office of Civil Rights, Department of Health, Education, and Welfare, Washington, D.C. 20201.

## ADMISSION

### General Information

In December of 1974, the Duluth campus was reorganized into six collegiate units. In the future these colleges and schools may develop individual admission policies. At the present time, however, the admission criteria summarized below apply to undergraduate admission to the College of Letters and Science, the School of Fine Arts, the School of Business and Economics, and the College of Education. The School of Social Development (see section on School of Social Development) and the Program in Dental Hygiene (see Dental Hygiene under section on College of Letters and Science) have specific requirements for admission in addition to those listed in the general policy. The Graduate School and the School of Medicine have also established individual admission policies, which are described in their respective sections of this bulletin.

Students should indicate on their application the college or school to which they are seeking admission. Candidates for the master in education, sixth year certification program for educational administrators, or master of industrial safety program should apply to the College of Education (see section on College of Education). Students who have not established an educational goal (i.e., "Major Undecided") should apply to the College of Letters and Science.

Application materials should be filed by the dates suggested in the *Class Schedule* for each quarter so admission is not delayed a subsequent quarter or year. A check or money order in the amount of \$10, made payable to the University of Minnesota, Duluth, must accompany each undergraduate application. Students

## General Information

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applying for the master's or sixth year program must pay \$15. This is a credentials examination fee and is not refundable.

For additional information or assistance, contact the UMD Admissions Office, 123 Administration Building. The initial letter should request an application for admission, briefly describe the prospective applicant's high school and college background, and outline plans for further study, including the department or general field in which he or she expects to major.

Acceptance for admission does not assure housing accommodations nor financial assistance. Applications for housing and for financial aid are made separately and should be filed with the appropriate offices.

Physically disabled students should note that UMD has a high degree of architectural accessibility. It is strongly recommended that disabled students contact the office of Services for Physically Handicapped Students for a pre-enrollment visit and to work out any unique problems regarding their attendance. (See also the section on Supportive Services Program.)

If UMD should find it necessary to limit enrollment due to a lack of space or academic resources, the following priorities for registration have been established:

1. First priority will be assigned to continuing students and previously registered students in good academic standing.
2. Second priority will be assigned to new graduate and professional students and new advanced standing (transfer) students.
3. Third priority will be assigned to new high school students and special students.
4. Fourth priority will be assigned to continuing and previously registered students not in good academic standing.

UMD will attempt to follow these priorities with a degree of flexibility, to allow consideration of special educational needs on an individual basis and as resources permit.

## Admission Criteria

### FRESHMEN

Applications are available from Minnesota high schools and from the Admissions Office, 123 Administration Building, University of Minnesota, Duluth, Minnesota 55812. Early application is encouraged. In most instances, students will receive an admission decision within a month after submitting a completed application.

Students interested in enrolling for summer work should see the separate *UMD Summer Session Bulletin*.

Students who rank in the upper half of their high school class, regardless of state of residence, are automatically admissible upon filing a completed application form.

Students who are not in the upper half of their high school class must present evidence of probable academic success at UMD. Such evidence must include test scores and student profiles (ACT, PSAT) and other materials necessary for the assessment of academic skills. A limited number of these applicants will be admitted on a first-come, first-served basis after they have completed a diagnostic assessment through UMD's Supportive Services Program. This assessment is designed to identify areas of skill that a student may need to improve in order to assure a successful college experience. The assessment is required; however, such Supportive Services programs as academic advisement, special courses, and other types of assistance are optional.



Outstanding high school students may be considered for admission prior to graduation (usually at the end of the junior year). Special interviews, letters of recommendation, and tests are required. (See section on Special Students.)

Students applying for admission prior to fall quarter 1978 will not be required to submit admissions test data. However, beginning fall quarter 1978, applicants will be required to submit results of either the PSAT or ACT. Beginning fall quarter 1979, all applicants will be required to submit ACT admissions test data.

## **ADVANCED STANDING (TRANSFER STUDENTS)**

Students who have completed 39 or more quarter credits of college work should request admission with advanced standing. Official transcripts from each institution attended must be filed.

Students are asked to submit official transcripts promptly so that appropriate evaluation of transfer credits can be accomplished in time to assist them in making decisions concerning their initial registration. Transcripts submitted later than 1 month prior to registration may not be evaluated when the student arrives for advisement.

Students may be admitted with advanced standing if they have successfully completed 39 or more credits with passing grades (D or above—including P). Such applicants must also have a cumulative grade point average of at least 2.00 and must have successfully completed 75 percent or more of all work attempted.

Students who do not qualify under these provisions will be considered on an individual basis by the director of admission in consultation with the dean of the appropriate college or school. In these cases, high school records and/or test scores may be required for use in the decision-making process.

Students who have completed less than 39 quarter credits of college work should request admission as a freshman. Such students must submit official transcripts of college work completed as well as freshman application information.

Questions pertaining to admission and to evaluation of transfer credits should be directed to the Admissions Office at UMD.

## **STUDENTS TRANSFERRING TO UMD FROM OTHER UNIVERSITY OF MINNESOTA CAMPUSES**

Students who wish to transfer to UMD from other University of Minnesota campuses must process a Request for Change of College form. This form can be obtained from the Office of the Registrar on any campus but should be completed and returned to the Office of the Registrar of the campus from which the student is transferring. A regular application for admission need not be filed. All admission requirements, as outlined in the section on Advanced Standing, must be met.

UMD students who plan to transfer within the University should consult the section on Registration.

## **SPECIAL STUDENTS**

Persons who wish to enroll but *who are not candidates for a degree* may apply as "special" students. Special students will be admitted to the appropriate school or college. Although complete credentials are usually not required, transcripts of previous work or test results may be requested in individual cases.

Admission as a special student is on a quarterly basis. Students wishing to continue beyond 1 quarter must contact the Admissions Office prior to registration for the succeeding quarter. The \$10 credentials examination fee is not required.

Students who might qualify for this category include:

1. Well-qualified high school seniors who, with the recommendation of the high school counselor (or principal) and the students' parents, can be considered for concurrent college and high school registration.
2. Persons who have not completed high school but wish to try a limited amount of work (usually a maximum of 6 credits for the first quarter).
3. High school graduates who do not intend to work toward a degree.
4. Persons who have completed a bachelor's degree or higher, who have not been admitted to Graduate School and who wish to upgrade their basic preparation. Only 9 quarter credits of such work may later be applied to a graduate program. Persons who have completed a bachelor's degree or higher and who are candidates for a second degree will be admitted to the appropriate college or school with advanced standing.

## GRADUATE PROGRAMS

Any student with a bachelor's degree or its foreign equivalent from a recognized college or university may seek admission to the Graduate School of the University. Programs at UMD include the master of arts degree offered in art, communicative disorders, education, education (art education), education (music education), educational administration, educational psychology (school counseling), English, and history. Programs for the master of science degree are offered in biology, chemistry, geology, and physics. A master of social work degree in social development as well as a master of business administration degree are also offered. A specialist certificate program in elementary, secondary, or general school administration also is available. Additional information can be obtained from the Assistant Dean, Graduate School, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812. (See section on the Graduate School.)

The Master of Education Degree Program, Master of Industrial Safety Program, and Sixth Year Program in Educational Administration are postbaccalaureate programs offered by the College of Education. (See section on College of Education.)

## SCHOOL OF MEDICINE—DULUTH

Only legal residents of Minnesota, the Upper Peninsula of Michigan, and certain northern-most counties of Wisconsin are considered for admission. Residents of other regions of Wisconsin and Michigan or other states have no chance of being considered for admission under present policy.

At present, two of the most significant qualifications that an applicant can present to the Committee on Admissions are a demonstrated capacity for excellence in scholarship in an academic discipline of his or her own choice, and personal and background traits that indicate a high potential for becoming a family physician. Applicants will also be evaluated with the aid of letters of recommendation and impressions gained from any personal interviews that may be held. Sex, race, religion, or national origin are not factors in determining eligibility for admission.

Representatives of the School of Medicine—Duluth are prepared to discuss premedical programs with college students, teachers, and advisers, either in person or through correspondence. A useful reference book, *Medical School Admission Requirements*, summarizes admission requirements and application procedures for all medical schools in the United States and Canada. It can be purchased from the Association of American Medical Colleges, 1 DuPont Circle N.W., Washington, D.C. 20036, and is also available in most college reference libraries.

## **SCHOOL OF SOCIAL DEVELOPMENT**

### **Bachelor of Social Development Degree (B.S.D.)**

To be admitted to the bachelor of social development degree (B.S.D.) program a student must (1) have a cumulative grade point average of 2.00 based on a 4.00 system (special consideration is given to disadvantaged students who do not meet this requirement); (2) complete the pre-social development requirements as listed in the section on the School of Social Development; (3) complete formal application for admission to the School of Social Development (students are urged to apply for admission early in the sophomore year); and (4) complete the sophomore year before formal admission is granted.

Application forms are available in 295 Marshall W. Alworth Hall.

### **Master of Social Work Degree (M.S.W.)**

Applicants to the master of social work degree program must meet the admission requirements of both the University of Minnesota Graduate School and the School of Social Development at UMD.

The school admits students to its 90-credit M.S.W. program in September and January. Students who qualify and are accepted on an advanced standing basis are admitted to a 60-credit M.S.W. program in September. In order to receive consideration, applications must be submitted no later than 30 days prior to the intended date of matriculation. Early applications are encouraged.

Address inquiries to the Chairperson of Admissions, 295 Marshall W. Alworth Hall, School of Social Development, University of Minnesota, Duluth, Minnesota 55812.

## **DENTAL HYGIENE PROGRAM**

The dental hygiene program offered at the University of Minnesota, Duluth, is accredited by the Commission on Accreditation of Dental and Dental Auxiliary Training Programs of the American Dental Association. Successful completion of the program leads to an associate in science degree in dental hygiene and qualifies the graduate to take national and regional board examinations necessary for licensure to practice.

The dental hygiene program at UMD consists of 5 quarters and 1 5-week summer term of specialized study and training.

To be eligible for admission to the program, a student must:

1. Complete a year of pre-dental hygiene course work. This curriculum may be completed at UMD or at any accredited college or university.
2. Take the Dental Hygiene Aptitude Test (DHAT). The test is offered three times a year, in November, February, and April, at UMD and at various testing sites throughout the United States. Information on the DHAT may be obtained from the office of the dental hygiene program or by writing to the American Dental Hygiene Association, 211 East Chicago Avenue, Chicago, Illinois 60611.
3. Satisfy requirements for admission to UMD.

A student who has completed or is in the process of completing the above admission requirements should apply for admission to the Office of the Director, Dental Hygiene Program, 73 Marshall W. Alworth Hall, University of Minnesota, Duluth, Minnesota, 55812. Applications should reach that office by April 1 of the academic year preceding the desired September enrollment date. Each applicant will be notified of acceptance to the program separately from notification of admission to UMD.



## General Information

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Students will be evaluated academically on the basis of their Dental Hygiene Aptitude Test scores and academic performance in the pre-dental hygiene curriculum. Priority will be given to fully qualified regional applicants.

A class of 18 will be enrolled each September. (See section on Dental Hygiene.)

### SUMMER SESSION

(See *UMD Summer Session Bulletin*)

Two 5-week terms of regular University courses are offered each summer on the Duluth campus. Students normally take from 6-9 credits each term. There are no nonresident restrictions for summer attendance, and tuition is the same for resident and nonresident students. Students are not required to report to the campus until the day before classes begin.

All regularly enrolled students may attend summer session. Admission as a summer-only student is open to all who wish to register. The \$10 credentials examination fee is not required, and usual admission criteria and application procedures for freshmen or advanced standing students do not apply. However, students who plan to continue in the academic year must apply for regular admission, meeting admission requirements described previously in the section on Admission Criteria.

A separate *Summer Session Bulletin* is usually available after April 1. The bulletin contains all necessary preregistration forms, explanations of procedures, and listings of course offerings. For additional information, write to Director of Summer Session, 410 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

### INTERNATIONAL STUDENTS

Applicants from other countries are considered on an individual basis, with consideration given to the academic record of each student in relation to the educational system of his or her native country. Students applying must show evidence of exceptional academic achievement and probability of success at UMD. The Test of English as a Foreign Language (TOEFL) is required of all students applying from outside the United States unless the applicant's native language is English. Letters of reference from individuals under whom the applicant has studied and evidence of good health are required.

The TOEFL test is offered worldwide at selected locations. Students who cannot obtain a TOEFL Bulletin of Information for Candidates, International Edition, and registration forms locally should write to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey 08540, U.S.A.

The University has a limited number of tuition scholarships that are awarded competitively to foreign students. Scholarships do not provide assistance for room, board, or travel.

A Canadian student with a diploma from a provincial high school must possess a cumulative grade point average of 2.50 in the 4 years leading to completion of the junior matriculation in order to qualify for admission as a freshman.

The following scale is used to convert TOEFL scores to the grade point system:

- 100-76=A=4 grade points
- 75-60=B=3 grade points
- 59-54=C=2 grade points
- 53-50=D=1 grade point
- Below 50=F=0 grade points

A maximum of 45 quarter credits can be granted for course work completed at the senior matriculation level. The total number of credits allowed is determined by the content and quality of the student's work.

Students from other countries who are applying for admission as freshmen will not be required to submit ACT or PSAT test scores.

## **RESIDENCE STATUS**

An applicant's residence status under University regulations is determined at the time of application for admission. A nonresident student pays higher fees.

A student who has not had a permanent home in Minnesota for at least a calendar year will be charged nonresident tuition. The completion of a year's stay in Minnesota does not, in and of itself, establish residence for University purposes; a person who moves to Minnesota coincident with attending school may not be able to demonstrate that he or she is acquiring Minnesota residence. The student from out of state who proposes to establish residence must assume the responsibility for proving conclusively that he or she has been a resident for the required time and intends to make a permanent home in the state.

Although the residence classification may be changed whenever all necessary requirements are met, the student must initiate the action. If there is a question about the initial residence classification, the student should contact the director of admissions at UMD. If the student wishes to appeal the residence classification, she or he should contact the chairperson of the Campus Residency Review Committee, 184 Administration Building. (See Special Resident Fee Privileges under the section on Costs and Fees.)

Under provisions of compacts between the Minnesota and Wisconsin Higher Education Coordinating Commissions and the North Dakota Board of Higher Education, Wisconsin and North Dakota residents are eligible to apply for the privilege of paying resident fees in Minnesota. The reciprocity agreement is also open to Minnesota residents who may wish to attend a Wisconsin or North Dakota college, university, or vocational school. For further details, students should consult their high school counselor or the Admissions Office at UMD.

## **HOUSING**

### **General Information**

Requests for information about or assistance in securing room and board in the residence halls or space in one of the two apartment complexes at UMD should be addressed to the Housing Office, 159 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

Recreational and educational opportunities are an integral part of student life in all residence halls and on-campus apartments. Each residence area also has trained live-in staff members available to assist students with concerns or problems. Recognizing the sometimes specialized housing needs of disabled students, the UMD Housing Office is committed to providing accommodations to meet those needs.

Students are encouraged to make housing arrangements during the winter or early spring prior to fall quarter registration. A reservation for on-campus housing can be requested by sending an application-contract together with a \$20 non-refundable deposit to the Housing Office. Application-contracts are available upon request. The reservation will be confirmed when the \$20 application fee is received. The student should not assume that confirmation of a reservation for housing is an assurance of admission to UMD.

Once the application is accepted and confirmed, an advance payment of \$150 is due by July 1. The advance payment and application fees are credited to the first quarter's room and board payment.

## On-Campus Residence Halls

Accommodations are available in the residence halls for both men and women. All residence hall rooms are furnished with beds, desks, chairs, and lamps. Bedspreads, one blanket, and weekly changes of bed linen are provided. Students should bring their own extra blankets, towels, and other personal necessities. Each hall provides study areas, television, lounges, vending machines, and laundry facilities. Most rooms are equipped with telephones. Meals are served in the dining hall on the upper campus. A variety of meal plans is available to residence hall students. Special accommodations are available to residents who have physical limitations.

## On-Campus Apartments

**Village Apartments**—This complex offers 76 modular apartment units, each housing four students. The complex, located in a wooded grove on campus, includes a student service center with lounges, game and conference rooms, a vending area, and laundry facilities. Each unit has two bedrooms, two bathrooms, a full kitchen, and a dining-living room. Units are furnished except for bedding, dishes, and kitchen utensils. All utilities except telephone are included in the rent. The apartment units are grouped in clusters of four around a courtyard and are connected by lighted walkways. The Village is governed by students and resident advisers. These accommodations are not accessible to severely handicapped students.

**Stadium Apartments**—This three-building complex comprises 78 apartments and is located adjacent to a tree-bordered creek and in close proximity to the academic areas. Each apartment can accommodate four students and has two single bedrooms, one double bedroom, a bath and half-bath, kitchen, and living-dining area. Prospective residents should familiarize themselves with furnishings and plan to bring extra items they may want or need. Apartments are furnished except for bedding, dishes, and kitchen utensils. All utilities except telephone are included in the rent.

## Off-Campus Housing

Current listings of privately owned off-campus housing facilities for students are posted by the Housing Office, 159 Administration Building. Arrangements for off-campus housing are the responsibility of the individual student. Ordinarily, off-campus living accommodations are rented by the month, and many landlords require an advance deposit. Students should be certain that the accommodations are acceptable before making a deposit and should establish the exact rental period. Students should notify the Housing Office if problems arise later concerning living conditions.

The UMD Food Service provides a variety of meal plans for students who live off campus.



## EXPENSES AND FEES

### Cost of Attendance

Cost of attendance for a resident of Minnesota who is a full-time student living in a dormitory is approximately \$2,900 per year. This figure can be reduced for those students who live at home, carry lunches, or otherwise economize on board and room. Tuition costs outlined below were in effect in the academic year 1976-77 and can provide a basis for an estimate of the cost of attending UMD.

### Fees

All University fees are subject to modification by the Board of Regents.

	Quarter Fee		Credit Hour Fee	
	Resident	Nonresident	Resident	Nonresident
Undergraduates (including Dental Hygiene) .....	\$221.00	\$ 636.00	\$18.50	\$53.00
Graduate School students (including School of Social Development)				
More than 6 credits .....	286.00	781.00	No credit hour fee provided	
6 credits or less, or thesis only, or doctoral candidates in final quarter	143.00	391.00	No credit hour fee provided	
School of Medicine .....	541.00	1,366.00	No credit hour fee provided	
Master of Education degree students .....	239.00	701.00	20.00	58.50

### SPECIAL RESIDENT FEE PRIVILEGES

*New full-time faculty members* with the rank of instructor or above, civil service personnel eligible for faculty group insurance, and certain accredited foreign diplomatic officials and their immediate families may pay resident fees in all colleges. Similar provision is made for military personnel on duty in Minnesota for reasons other than college attendance, new full-time faculty members on the staff of accredited Minnesota colleges, and civil service employees working 75 percent time or more but not eligible for faculty group insurance. In the last two cases, however, the privilege is not extended to family members. Persons who plan to register under these provisions should contact the Office of the Registrar to make appropriate arrangements.

*Residents of Wisconsin and North Dakota* are eligible to apply for the privilege of paying resident fees. For details, see the section on Residence Status in this bulletin.

*Graduate students* (and their immediate families) who belong to one of the groups listed below and hold a University appointment of 25 percent time or more may pay tuition at the Graduate School resident rate, regardless of source of funds, residence status, or curriculum pursued. Groups eligible are fellows, scholars, assistants, instructors, research associates, members of the teaching staff, and personnel who work at scientific bureaus and experiment stations. Such students must be either regularly enrolled in the Graduate School or in the final year of a master's degree curriculum if enrolled for courses in undergraduate colleges.

*Faculty members at the postdoctoral level* may audit courses without registration or payment of fees. An official class audit card may be obtained from the Graduate School should the need arise.

*Residence advisers* with a bachelor's degree may pay tuition at the resident rate of the college in which they are enrolled.

### **STUDENT SERVICE FEE**

The student service fee for undergraduates and graduates is \$32.75 per quarter (subject to annual modification by the Board of Regents).

The student service fee is required of all students registered for 6 or more credits in any quarter, except those living beyond the commuting area while doing research away from the campus, those registered for starred papers only, and those registered only for purposes of consultation with their major adviser by mail or on occasional visits to the campus. Any student (including Continuing Education and Extension) for whom the student service fee is not required may elect to pay the fee and thus become eligible for all services it covers.

### **STUDENT HEALTH SERVICE FEE**

The health service fee is \$11 per quarter (subject to annual modification by the Board of Regents). It provides for emergency medical care on campus. Participants are eligible to use the Health Service facility located on campus.

The health service fee is required of all students registered for 6 or more credits in any quarter, except those living beyond the commuting area while doing research away from the campus, those registered for starred papers only, and those registered only for purposes of consultation with their major adviser by mail or on occasional visits to the campus. Any student for whom the health service fee is not required may elect to pay the fee and thus become eligible for all services it covers.

### **STUDENT IDENTIFICATION CARD**

Each student is issued a student identification card at the time of initial registration in the University. The card bears the student's name, student file number, and photograph, and is a permanent card to be used during the entire time the student attends the University. The card should be in a student's possession at all times and must be presented to receive various University services and to register each quarter. The replacement charge for a lost or damaged card is \$4.

### **STUDENT ACTIVITIES CARD**

Students who pay the student service fee receive a student activities card, which, when presented with the student identification card, entitles them to attend athletic events, theatre productions, Kirby Student Center activities, and convocations and lectures as well as to use the Library, the Health Service, and other facilities of the University.

### **STUDENT HOSPITAL INSURANCE FEE**

The student hospital insurance fee is \$28.95 per quarter for single coverage and \$146.05 per quarter for family coverage for married students (subject to annual change).

Students already covered by adequate hospitalization insurance may be exempted from this fee by completing a Request for Exemption card. Students taking less than 6 credits are not required to pay the fee but may do so on an optional basis. Payment of this fee entitles a student to Blue Cross hospitalization and Blue Shield medical-surgical coverage that pays substantial allowances for physician's care and all but \$2 per day for a multiple-bed hospital room. Whether or not the student plans to enroll for either summer term, he or she may purchase insurance for the entire summer at the cashier's window before June 15.

## SPECIAL FEES

Undergraduate Credentials Examination Fee (for all except special, summer-only and Continuing Education and Extension students) .....	\$10.00
Graduate Credentials Examination Fee .....	15.00
Special Examination Fee .....	20.00
Special Laboratory Course Fee (per quarter) .....	2.00
Graduation Fee (including small diploma) .....	10.00
Graduation Fee (including large diploma) .....	17.50
Duplicate Diploma Fee	
Large .....	10.00
Small .....	7.50
Placement Service Fee (required of all registrants) .....	10.00
Lockers, small or large (refundable padlock deposit also required) (per quarter) .....	.25 or .50
Parking Decal (per quarter) .....	6.00 or 10.00
Record Service Fee (transcript) .....	1.00
Additional copies .....	.50
Late Fee (for late registration or late payment of fees)	
Through first week of classes, except Graduate School students and teachers in service .....	6.00
Through second week of classes .....	10.00
Third week of classes and thereafter .....	20.00
The following courses require payment of fees as indicated:	
Music Lesson Fee—A list of courses requiring this fee is furnished with registration materials.	
10 half-hour lessons each quarter .....	40.00
(This fee may be waived for students in good standing with an approved major in music until they have completed the required number of credits in applied music. The waiver applies only to fall, winter, and spring quarters.)	
Physical Education and Recreation Fee—A towel and equipment fee of \$2 per quarter is charged for all lower division physical education and recreation activity courses except as shown below:	
PE 1304, 1305, 1310, 1602, 1603, 1604—\$3.25 per quarter in place of towel and equipment fee; 1500-1501—\$5 per quarter; 1414—\$7 per quarter; 1404, 1406—\$20 per quarter <sup>1</sup> , 1506, 1507—\$24 per quarter; 1514—\$25 per quarter; and 1502, 1503—\$30 per quarter.	

## DEPOSITS

Art—For material cards as required .....	5.00
Chemistry—For breakage card .....	10.00
Industrial Education—Minimum for a materials card for all laboratory courses .....	3.00

## Refunds

A student who cancels all or part of his or her registration before 6 weeks of any quarter have passed is entitled to a refund of tuition, student service fee, and course fees according to the following schedule: before the quarter begins, full refund; within the first week, 90 percent; within the second, 80; third, 70; fourth, 60; fifth, 50; sixth, 40. After the sixth week, there is no refund.

## STUDENT FINANCIAL AID

All students requesting financial aid at the University of Minnesota, Duluth, are required to submit the Family Financial Statement (FFS) and the Institutional Data

<sup>1</sup>Subject to approval by the Board of Regents.



## General Information

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Sheet (IDS) of the American College Testing Program (ACT). These forms are available from high school counselors or from the Financial Aids Office at UMD. The information requested on these two forms provides the basis for making all awards of financial assistance administered by the Financial Aids Office. Priority consideration is given to students whose application forms are received by February 1 and who demonstrate need. A Basic Educational Opportunity Grant (BEOG) application is required of all undergraduate students requesting financial aid.

High school seniors should consult their counselors for information and forms concerning local resources, the Basic Educational Opportunity Grant, and the Minnesota State Scholarship and Grant, which require separate annual applications.

Those students who expect to receive financial assistance from the Division of Vocational Rehabilitation should make arrangements with their DVR counselor well in advance of enrollment in addition to filing the above forms from the UMD Financial Aids Office.

Financial assistance is also provided by the Federally Insured Student Loan and the University Trust Loan Fund programs. These programs are recommended by the Financial Aids Office if appropriate.

Students interested in part-time employment that is not based on need should contact the Student Part-Time Employment Office, 225 Administration Building, when classes begin.

Transfer students coming to UMD must provide the Financial Aids Office with a Transfer Student Aid form. This form is available at the UMD Financial Aids Office. The form must be completed by the financial aid officer at the institution previously attended.

*Note:* Due to changes in federal and state regulations, priority dates (February 1) are subject to change.

## Scholarships


Awards are made to students with financial need who have demonstrated academic excellence.

## Loan Funds

Loans available to UMD students are listed below. Further information may be obtained from the Financial Aids Office, 139 Administration Building.

### NATIONAL DIRECT STUDENT LOANS

Loans may not exceed demonstrated need established on the Family Financial Statement. No interest is charged while the borrower is in at least half-time day attendance at an institution of higher education, or during any period, not exceeding 3 years, that he or she is serving in the armed forces, Peace Corps, or VISTA. Simple interest at the rate of 3 percent per year on the unpaid balance will be charged beginning 9 months after the date the borrower ceases to be at least a half-time student. Repayment of the loan will also begin at this time and may be arranged over a 10-year period.

Full-time teachers in elementary or secondary school who qualify under federal regulations, as well as borrowers who served in the U.S. armed forces after June 30, 1970, may have the loan principal and interest of their National Direct Student Loan partially canceled. 



## FEDERALLY INSURED STUDENT LOANS

These educational loans are not based on need. Funds are secured through a commercial lender or the Minnesota State Student Loan Program. Freshmen students may borrow one-half the cost of their college education, as determined by the Financial Aids Office. Sophomores, juniors, and seniors may borrow, depending on the lender, up to \$2,500. If the adjusted family income is less than \$25,000, no interest is charged while the student is in full-time attendance. Seven percent interest is charged during the period of repayment. Repayment must be completed within 10 years.

## SHORT TERM LOANS

Short term loans to cover nonrecurring, unexpected expenses are available in limited amounts to UMD students. The interest rate is 3 percent while the student is attending UMD and 6 percent following graduation or withdrawal from school. To be eligible for this loan, a student is normally required to establish need and a guaranteed source of repayment. This loan does *not* cover long-term expenses.

## UNIVERSITY TRUST FUND LOANS

These loans allow students to borrow \$1,000 per academic year, not to exceed \$3,500, while completing a baccalaureate degree. The student will be assessed 3 percent interest during full-time attendance at UMD. During the repayment period, the student is assessed 6 percent interest. Evidence of financial need is not required to be eligible to participate in this program. However, monies borrowed must be used exclusively for educational expenses.

## Independent Scholarships

The student applicant must apply directly to the following sponsors:

1. *James Wright Hunt Scholarship*

Criteria: March 1 deadline

Graduate of Duluth public school

Based on high scholastic achievement and character

Need is not a factor

Contact: Mrs. Harry Dack, Executive Secretary

2215 East 5th Street—Room 102

Duluth, MN 55812—Office telephone 724-6500—Home 724-5655

2. *Marshall H. and Nellie Alworth Scholarship*

Criteria: March 1 deadline

Graduate of Duluth or northern Minnesota high school

Applicants must have demonstrated qualities of character, perseverance and ambition, in addition to high scholastic standing  
Science majors—including chemistry, physics, mathematics, engineering, geology, the biological sciences, and medicine including the M.D.

Evidence of financial need is required

Contact: R. W. Darland, Vice President and Executive Director

314 Hawthorne Road

Duluth, MN 55812—Telephone 724-2051 or 628-3433  
Must submit to ACT—Code #6625

### 3. *Minnesota State Grant and/or Scholarship Program*

Contact: Minnesota Higher Education Coordinating Board  
Suite 901—Capitol Square  
550 Cedar Street  
St. Paul, MN 55101—Telephone (612) 296-5715

## Air Force ROTC College Scholarships

College scholarships are awarded to qualified AFROTC cadets. Awards are based on the applicant's potential as an Air Force officer, as demonstrated on a composite of the Air Force Officer Qualifying Test score, academic achievement, and recommendation of an AFROTC scholarship committee. Each scholarship provides for full payment of tuition and laboratory and associated fees and includes an allowance for textbooks and a tax-free allowance of \$100 each month during the period the student is in school and on scholarship status. Scholarships are available for 4, 3, or 2 years. Application for 4-year scholarships must be made early in the senior year of high school. Students apply for the 3- and 2-year scholarships through the Department of Aerospace Studies. Men and women are eligible for scholarships.

## Social Security and Veterans Benefits

Students interested in determining their eligibility for Social Security benefits should contact their local Social Security representatives.

Students eligible for veterans benefits should contact the Veterans Administration representative on the UMD campus, 104 Administration Building.

## Designated Scholarships

Many organizations outside the University, such as labor unions and fraternal orders, award scholarships. Students may obtain information concerning these scholarship opportunities from the secretaries of these groups. Special application forms are usually required.

## American Indian Scholarships

Candidates for state or federal American Indian scholarships who plan to attend the University of Minnesota should file a State of Minnesota Scholarship and Grant Application and a University of Minnesota Financial Aid Application.

American Indians who are residents of Minnesota may be eligible for special scholarship assistance. Information regarding opportunities for financial assistance from state and federal sources may be obtained from the Director of Indian Education, State Department of Education, St. Paul, Minnesota 55101; or from the U.S. Office of Indian Affairs, 831 2nd Avenue S., Second Floor, Minneapolis, Minnesota 55402.

## **ORIENTATION AND ADVISEMENT**

### **Orientation**

Orientation at UMD is designed to familiarize new students with the University environment. The entire campus community is involved with orientation activities in an effort to make them pleasant educational experiences for new students.

Activities are intended to provide academic advisement and assistance with registration as well as to acquaint the new student with the broad educational philosophy of the University. Orientation is a year-round activity; however, the most intensive activities are planned for new fall quarter students. Two 2-day orientation sessions in mid-August and one 2-day session in late September are scheduled for freshmen. Transfer students have a 1-day session the week prior to the beginning of classes. During winter and spring quarters, new students are notified in their acceptance letters of the date and time of orientation. Orientation programs for parents of new freshmen are held concurrently with the fall quarter freshmen sessions.

### **Advisement**

Each UMD student is assigned an adviser according to the course of study, major, and/or curriculum the student plans to follow, as indicated on the Application for Admission form. When the student's interests or major objectives change, she or he should request a change of adviser at the Advisement Office, 184 Administration Building.

Students should establish a close working relationship with the faculty member serving as their academic adviser. The adviser will help them develop a better understanding of their responsibilities, the requirements of their curriculum, and other regulations.

## **COUNSELING**

The Counseling Office helps students with both academic and personal matters. Students may consult personnel of the Counseling Office about any personal, financial, or educational problem. To assist with the counseling process, counselors have available a wide range of appropriate tests (aptitude, interest, achievement, and personality), bulletins of information on admission testing for professional or graduate schools, and an occupational library that students may use at any time.

Appointments may be scheduled in advance by writing, calling, or visiting the Counseling Office, 184 Administration Building. A student may request to see a particular counselor. In emergencies, a student can see a counselor almost immediately.

Group experiences for the student can be a valuable part of the counseling process. Students may sign up in the Counseling Office for a variety of groups such as personal adjustment groups, personal growth groups, and career planning groups.

Counseling is an attempt to help the student to make decisions, not to tell the student what to do. Emphasis is placed on the ultimate responsibility of each student for conducting his or her own life and making the most of it. The counselor's job is to help a student better understand the significance of his or her feelings, attitudes, aptitudes, and other personal qualities in making personal, educational, and vocational plans.



## CAREER DEVELOPMENT AND PLACEMENT

The Career Development and Placement service assists students with career assessment and studies and to obtain career positions upon graduation. Career development resources are designed to help students in selecting and planning studies directed toward career goals. Components include credit classes on career planning, counseling, career information, as well as assistance with résumé writing and interviewing techniques.

All freshmen take the Strong-Campbell Interest Inventory (SCII), which can serve as a valuable resource in career planning. The inventory assesses student interests and relates them to careers. Later, students may match their test results with those of people who consider themselves successful in various careers.

The placement staff assists seniors and alumni in finding employment for which they qualify. The staff also assists school administrators and other employers by locating and recommending qualified candidates for positions. A year-round service to bring graduates into contact with prospective employers is also maintained.

Senior baccalaureate degree students are required to register with the placement service. This requirement must be completed in the first quarter of the student's senior year. Seniors who do not wish to file credentials must secure a release from the director of placement and career planning. Seniors who actively utilize the placement service are required to pay the current fee (see Special Fees, page 15).

Reactivation of placement services may be requested at any time by alumni who pay the appropriate service fee. Also, former registrants who are not actively registered for placement services may have their inactive credentials forwarded at a nominal charge.

The course Psy 1701, Career Development: A Time to Decide, is arranged for 1 credit through the academic departments for students who have declared their major. It is offered through the Department of Psychology for 1 to 3 credits for students who have not declared their major. For more information, contact the Office of Career Development and Placement, 255 Administration Building, or the academic adviser.

## REGISTRATION

### General

Registration for classes at the University takes place each academic quarter. New students will be mailed registration instructions prior to the start of their first quarter. The mailing will contain the student's permit to register and information on the time and place of registration. Students currently enrolled at UMD should see the *Statesman* and the *Class Schedule* for registration dates and procedures.

Students who were previously enrolled at UMD (exclusive of summer sessions) and who were in good academic standing when they left may reenroll by filling out a Request for Reenrollment form in the Office of the Registrar. This must be done 2 weeks prior to registration. Transcripts of all college-level work completed since last attendance (including work taken in Continuing Education and Extension) must also be submitted.

## Students Transferring Within the University

Students who wish to transfer from one college or school within UMD to another must secure and file the appropriate form through the Office of the Registrar. Students transferring from UMD to another campus of the University will also proc-

ess the change form through the Registrar's Office. No fee is required for transfer. Students are advised to consult the appropriate bulletin for admission criteria and application information. Transfer forms must be filed at least 6 weeks prior to the quarter in which the student plans to enroll in a new college or school.

Students presently attending another campus of the University who wish to transfer to UMD should consult the section on Admission Criteria.

## Auditing Courses

To audit a course, a student follows the same registration procedure and pays the same fee as for courses bearing credit. Audited courses may not be used to fulfill degree requirements.

In order to register as an auditor, the registration symbol V must be entered on the registration program card; upon completion of the term, the V will be recorded on the transcript. Registration as an auditor must be completed prior to the end of the second week of the quarter.

## Cross-Registration

UMD undergraduate students have the opportunity to register concurrently at the College of Saint Scholastica, at the University of Wisconsin-Superior, and in the Division of Continuing Education and Extension of the University. UMD students paying full tuition may register for a maximum of two courses at Saint Scholastica or at the University of Wisconsin-Superior at no additional cost. Forms and information are available at the Registrar's Office, 104 Administration Building.

Full-time UMD day students may also register for a maximum of two courses in the Division of Continuing Education and Extension at no extra cost. Day students registering for less than 12 credits in day courses and having a cumulative credit load (day and Continuing Education and Extension) of 12 or more credits will be billed by day school for full tuition, and considered full-time day students for internal and external verification purposes. Additional information is available in the Registrar's Office or the Continuing Education and Extension Office, 410 Administration Building.

## Credit Loads

Students are limited to a maximum of 18 credits upon initial registration. However, if class space is available and the adviser and instructors of the classes involved approve, students may add courses during the first week of the quarter that bring their credit load over the maximum total of 18. No minimum number of credits is required.

## Course Prerequisites

The student is responsible for observing and adhering to the prerequisite information specified in the course descriptions.

### **Repeating a Course**

Students may retake a course in which they received a D, N, or F. Only the last passing grade will be tabulated in the grade point average. Students receiving a grade of C or above or a P must obtain departmental permission before retaking a course. In such cases, credits will be counted only once, and the grade received will be averaged in the cumulative GPA. Students must notify the Registrar's Office when a course is being repeated.

Once a student has graduated, repeating a course taken as an undergraduate will not be allowed. Transfer students may retake, at UMD or at their previous college, a course for which a grade of D, N, or F was originally assigned. Students may not retake a course at another college to remove a D, N, or F received at UMD.

### **Cancel-Add**

If a student alters his or her course schedule in any way after the initial registration (including changing a section of the same course), a Cancel-Add form must be processed in the Office of the Registrar. Students are discouraged from adding classes after the second week of the quarter. Students may cancel courses through the last day of the quarter. For courses canceled during the first 6 weeks, a W will be assigned by the registrar and recorded on the transcript. However after the sixth week, if the student is doing failing work at the time of cancellation, the instructor will assign an N on the final grade report.

The instructor's signature is required on the Cancel-Add form for each change in registration. Forms are available in the college or school office and in the Office of the Registrar. Processing of forms will begin on the afternoon of the second day of the quarter at the windows of the Office of the Registrar.

### **Withdrawal From the University**

To withdraw from all academic course work at the University, a student must contact the Counseling Office, 184 Administration Building.

Students withdrawing from the University after the sixth week of the term must be doing satisfactory work in order to receive the symbol W for courses in which they are registered. Students with outstanding financial obligations to the University are not eligible to receive grades or official transcripts of course work completed.

### **Forfeit of Enrollment**

Unless excused by the instructor prior to the class period, students who do not report to the first meeting of a class or laboratory section forfeit their enrollment in the course.

## **ACADEMIC STANDING AND PROGRESS**

### **General Information**

Students are responsible for completing all work required in each class for which they register, including makeup of any work missed as a result of excused or unexcused absences. In classes in which attendance is required, an excessive number of unexcused absences may, at the discretion of the individual instructor, result in a grade penalty.



Students are expected to know the times for their own final examinations. Examination times for each quarter are published in the Duluth Campus Final Examination Schedule at the front of the *Class Schedule*. This schedule is also distributed to all instructors and departments and is posted in various places on campus. Only a conflict between examination times or a schedule of three or more examinations in 1 day will entitle the student to seek adjustment of the examination schedule. Under these circumstances the student should confer with the registrar and secure a form for requesting a change in examination times.

## All-University Degree Requirements

Degrees from the University of Minnesota are granted by the Board of Regents on recommendation of the faculty. Requirements include the following:

1. Undergraduate students must meet all course, credit, and grade average requirements of the University school, college, or division in which they are enrolled, including the all-University liberal education requirements.
2. Students must meet residency credit requirements specified by the school or college from which they intend to receive their degree. In addition, degree candidates must present 45 credits awarded by the University of Minnesota, Duluth.
3. Graduate School students must meet only the academic and residency requirements of their graduate department and the Graduate School.
4. Students must meet all financial obligations to the University.
5. Prospective graduates must file an application for the degree 2 quarters ahead of the expected commencement date. Graduates should expect to receive their diploma approximately 3 months after commencement.

## Grading

There are five permanent grades—A (highest), B, C, D (lowest), and P ungraded but of at least D-level performance)—which may be assigned when a student successfully completes work for a course.

There is one permanent grade—N—which indicates no credit.

The temporary grade I (incomplete) is assigned only when a student has made an agreement with the instructor to complete the requirements for a course prior to the time the instructor submits final grades for a quarter. The instructor will submit, with the temporary grade I, the form specifying the remaining requirements to be completed. In the absence of such an agreement, the permanent grade N will be submitted.

The I remains in effect for 6 weeks after the beginning of the next quarter during which the student is in attendance, unless a different time period has been arranged between the student and instructor. At the end of this period the I will be changed to an N unless the instructor has submitted a change of grade or has agreed to an extension of the incomplete. If an extension is permitted, it is the responsibility of the student to obtain the Extension of Incomplete form, get the instructor's signature, and submit the form to the registrar prior to the deadline.

The permanent registration symbol W designates official cancellation of a course and is posted by the registrar only on the basis of an official change in registration. The symbol W is assigned in all cases of official cancellation during the first 6 weeks of classes; thereafter it will be assigned only if the student is doing satisfactory work at the time of official cancellation. A student who cancels officially after the sixth week of classes and is doing failing work will receive an N.

The symbol X is reported in continuing courses for which a grade cannot be determined until the sequence is completed. The instructor will submit a grade for each X when the student has completed the entire sequence.

Courses are graded under one of three systems at UMD: mandatory letter grading, mandatory P-N grading, and optional grading in which a student may select either letter grading or P-N grading. With optional grading, students make their selection of grading system at the time of registration. Changes from the original selection may be made during the first 2 weeks of the quarter by following the cancel-add procedure. The following restrictions apply to the various grading options:

1. A student seeking a bachelor's degree must earn a minimum of 120 credits in letter-graded courses.
2. A student seeking an associate in arts degree must earn a minimum of 60 credits in letter-graded courses.
3. A student may not select P-N grading in optional-graded courses which, for that student, fulfill major and/or minor requirements.
4. No more than 10 credits may be taken under the P-N grading option during any 1 quarter, with the exception of the quarter during which a student seeking teacher licensure is engaged in practice teaching.
5. No more than 15 credits of P-N graded courses may be applied toward liberal education requirements, and no more than 5 of these credits may be applied in any one of the four categories.

## Academic Records and Grade Point Average (GPA)

An official transcript for each student is maintained in the Office of the Registrar. The transcript is a complete record of all academic work attempted at UMD, transferred from other colleges and universities, and/or earned by examination or other acceptable methods.

The Office of the Registrar tabulates a cumulative grade point average on each transcript, and this constitutes the student's academic standing. The grade point average is determined according to the following system:

Each credit of A equals 4 grade points  
Each credit of B equals 3 grade points  
Each credit of C equals 2 grade points  
Each credit of D equals 1 grade point

Students may obtain copies of their transcripts at the Office of the Registrar. There is a charge for official copies of transcripts that bear the official seal of the University. Transcripts will not be released to anyone without the written consent of the student. The Regents of the University have adopted a policy of confidentiality concerning certain student records, which prohibits disclosure of records without the student's consent.

Grades are not mailed to students or their guardians but may be obtained by students at the Office of the Registrar. Grades for a given academic quarter are usually available during the first week of the succeeding quarter. A complete transcript is mailed to every student each summer.

## Credit by Examination

Any UMD student may take an examination for credit for any UMD course in which the student is not currently enrolled. The work must be of passing quality, and credits, not grades, are recorded. Credits earned by examination are listed separately

on the transcript and are not evaluated as regular residency or transfer credits.

Except when the institution incurs a service charge for the use of a nationally standardized examination, examinations for credit are free if taken during the student's first quarter of residence or during the first quarter after an absence of 1 year or more. At other times the student is required to pay the special examination fee of \$20 for each course for which credit is attempted.

Departments offer examinations for credit at least once a quarter. The date, time, and nature of the examinations are set by each department. To take a special examination for credit, the student must obtain a Special Examination form in the Office of the Registrar, 104 Administration Building, and complete the procedures outlined by that office.

## **College Level Examination Program (CLEP)**

Two kinds of examinations are offered by the College Level Examination Program (CLEP). General examinations measure achievement in the five basic areas of liberal arts, and subject examinations measure achievement in specific college courses.

UMD accepts scores of the general examinations and allows up to 36 credits to be applied toward the 56-credit liberal education requirements. For the general examination in humanities, mathematics, science, and social science, credit will be awarded according to the following scale:

- 25-49 percentile—4 credits
- 50-74 percentile—6 credits
- 75 percentile and above—8 credits

No grade is recorded for these credits, and they are not calculated into the grade point average.

CLEP credits awarded at another institution are not automatically accepted by UMD. The student must submit the original transcript of CLEP scores for evaluation. All scores are evaluated according to UMD policy, and appropriate credit is awarded.

UMD also accepts scores and allows credit for some of the CLEP subject examinations. The following subject tests can be taken for credit. Students should check with the appropriate department to determine the level of achievement required to receive credit for each of these examinations.

### *College of Education*

Psychology (Psy 1003)

### *College of Letters and Science*

Biology (Biol 1109, 1110)

Chemistry (Chem 1103-1104, 1110-1111, 1112)

English (Engl 1106-1107, 1504, 1505, 1561, 1905)

Geology (Geol 1110)

Mathematics (Math 1110, 1185, 3501)

Political Science (Pol 1011)

### *School of Business and Economics*

Accounting (Acct 1511, 1512)

Business, Office and Economic Education (BOEE 1204)

Economics (Econ 1002, 1004, 1005, 1203)

The CLEP examinations are given the third week of each month at the College of Saint Scholastica. The registration deadline for each CLEP examination is the first day of the month during which the test is to be taken, or by arrangement with the test



center. Students may pick up the CLEP registration guide from either the Office of the Registrar or the Counseling Office at UMD.

All preprofessional students and degree candidates must complete Engl 1106 and Engl 1107. Exemption from this freshman composition requirement may be obtained through satisfactory completion of the CLEP examination. Exemption will be granted on the following basis:

1. Students who score at the 75th percentile or above on the subject examination in College Composition (without the optional essay) will receive credit for Engl 1106 and Engl 1107.
2. Students who score at the 48th to 74th percentile on the subject examination in College Composition (without the optional essay) will receive credit for Engl 1106.
3. Students who score at the 60th percentile or above on the general examination in English Composition will receive credit for Engl 1106.

## Continuing Education and Extension Credit

If appropriate, college-level credit-bearing courses of the Department of Extension Classes and of the Department of Conferences of the University of Minnesota Division of Continuing Education and Extension may be used to meet degree requirements. Credits earned for such courses are evaluated as residence credits. Independent study (correspondence) credits earned through the University of Minnesota Division of Continuing Education and Extension may also be used to meet degree requirements. Such credits are evaluated as nonresidence credits and are subject to the restriction that a maximum of 6 of the credits may be used to meet upper division major requirements. Credits earned through extension or correspondence course work are transferred to the UMD day school transcript only at the request of the student. This request must be made through the Office of the Registrar.

## Transfer of Credit

A student is allowed credit for appropriate work completed at another accredited institution, including work taken in other divisions or colleges within the University of Minnesota. Technical and nontransfer courses from community colleges are usually not accepted for degree programs.

An advanced standing transfer student who is a candidate for baccalaureate degree and who has completed at another institution an associate or a baccalaureate degree program that contains a minimum of 45 credits of course work comparable to the course work required for the UMD lower division liberal education requirements, is considered to have met the UMD lower division liberal education requirements. Such students are not required to complete additional lower division liberal education course work.

Transfer courses are evaluated on the basis of equivalency of content with a similar course at UMD. If a transfer course has an equivalent at UMD, the student will receive appropriate credit. If a transfer course does not have an equivalent at UMD, credit may be allowed by departmental designation. Credits for transfer courses will be applied to a student's major only after consultation with the department(s) concerned. Official transcripts of credits earned should be requested from the schools involved and sent directly to Transcript Evaluation, Admissions Office, 123 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

## **Academic Standing**

A quarterly review is made of each student's work at UMD. To be in good academic standing, a student must:

1. have a cumulative GPA of at least 2.00 for all work at UMD, and
2. successfully complete (by earning a grade of A, B, C, D, or P) at least 75 percent of all work attempted after January 3, 1973.

Students who do not meet these criteria are placed on probation and may be required to carry a restricted credit load as long as they remain on probation. Students on probation for 2 successive quarters may be subject to academic dismissal by their school or college. A student will regain good academic standing when his or her overall work meets the two criteria stated above.

It is each student's responsibility to keep informed of his or her academic standing and whether it meets the standards of the academic standing policy. Each school or collegiate unit will assist its students with questions related to academic standing.

## **Graduation Honors**

Baccalaureate degree candidates who have done outstanding work may be awarded special honors upon completion of the senior year, either through graduation with honors, conferral of departmental honors, or both.

The decision to award graduation honors lies with the collegiate unit in which the student is enrolled. Each collegiate unit has established criteria, in order to ensure that academic excellence is maintained. No more than 15 percent of the graduating class in each collegiate unit may be nominated, and a student must have a minimum grade point average of 3.20 overall and in course work taken in residence at UMD. This policy is in effect beginning with the class graduating in June 1978.

Students should consult their major department and collegiate unit regarding questions and policies dealing with honors.

## **Academic Appeal and Petition**

After consultation with the adviser, a student seeking exception to the academic policies of his or her college or school may petition the dean of the college or school for exemption from a regulation.

## **STUDENT LIFE PROGRAMS**

### **American Indian Program (Amln)**

The primary responsibility of the American Indian Program is to support American Indian students in all aspects of their collegiate experience. The program provides advisement in and assistance with financial, academic, and personal matters. The recruitment, orientation, and registration of new American Indian students is also a major responsibility of the Amln staff.

The program attempts to encourage the campus community—including students, faculty, and staff—to explore and understand American Indian cultures.

### **Foreign Student Program**

The Foreign Student Program provides the personal, educational, and cross-cultural assistance needed by students from other countries. Currently over 100 students from 29 countries are enrolled at UMD. This diversity of foreign students enables American students to share academic and social experiences with individuals from cultures different from their own. Students and faculty members have opportunities to discuss important issues with students whose world views may expose them to new areas of understanding.

The International Club, a student organization, encourages both American and foreign students to participate in club activities. The Foreign Student Committee hosts several social events during the year to encourage faculty members, staff members, and American students to meet the foreign students. The three colleges in the Duluth-Superior area sponsor a Feast of Nations each spring, and the foreign students themselves often present educational programs or interesting exhibits in Kirby.

### **Student Organizations**

Membership in student organizations and programs is open to those interested in learning experiences outside the classroom. Such experiences are an important aspect of the educational process, and students are encouraged to take advantage of the opportunity to take part in them. Over 100 registered student organizations at UMD are active in such areas as theatre, athletics, religion, academic and departmental concerns, and political and social action. In addition, there are both social and service sororities and fraternities as well as honorary and special recognition clubs and societies.

### **Student Government**

The UMD Student Association, better known as SA, is a representative system of student government open to any member of the UMD student body. SA provides an arena in which students can discuss existing University policies and recommend new ones to meet the demands of an ever-changing University. Its cabinet consists of a president, an administrative assistant, a vice president of academic affairs, a vice president of business affairs, and a vice president of student affairs. The elected president and University student senators participate in both the UMD Campus Assembly, which is the legislative branch of the campus, and the All-University Senate.

### **Kirby Student Center**

Kirby Student Center is a busy place 7 days a week for students, faculty, staff, and visitors. It is a place to discover an internationally known speaker, an award-winning film, a quiet corner, a new friend. A relaxed atmosphere fills Kirby Student Center. Music, a fireplace, artworks, a games room, and comfortable lounges provide a pleasant setting for fun time or serious occasions. Exhibits, debates, and jazz and modern music are among the activities scheduled. Kirby is the center of action and the focal point for the feeling that is UMD.



## **Statesman**

UMD's weekly newspaper, the *Statesman* is written, edited, and managed by students. Each member of the student body receives the paper. Subscriptions are paid for through the student service fee.

## **Convocations, Lectures, and Concerts**

The University offers a varied series of lectures, concerts, and dramatic performances presented by students and faculty members as well as guest artists and lecturers. The School of Fine Arts, Kirby Student Center Program Board, and student organizations join to bring to the campus noted American and international attractions. Information on these presentations and community programs can be obtained by contacting the Kirby Student Center information desk.

## **Committee on Student Affairs**

The Committee on Student Affairs, composed of both faculty members and students, is responsible for developing policy and interpreting and enforcing regulations dealing with the nonacademic educational programs of the University. It also serves as an appeals body when student organizations feel that they have been dealt with unfairly or arbitrarily.

## **STUDENT BEHAVIOR**

The Student Behavior Judiciary Committee is responsible for maintaining appropriate standards of conduct and citizenship among the members of the UMD student body. When the University conduct code has been violated, action by the committee is designed to rehabilitate the individual and also to protect and enhance the social and academic environment of the institution. A student may be dismissed or suspended from the University for behavior inappropriate to his or her responsibilities as a citizen of the college community. This action is instituted by the Student Behavior Judiciary Committee. Membership of the committee is made up of students and faculty members.

Problems related to student behavior should be referred to the Conduct Code Coordinator, 123 Administration Building, or to the chairperson of the Student Behavior Judiciary Committee. Problems concerning student behavior in on-campus residence areas should be referred to the Residence Judiciary Board. This group, consisting of students and staff members, acts with goals in mind similar to those established by the Student Behavior Judiciary Committee.

## **FACILITIES AND SERVICES**

### **Facilities**

The Duluth campus consists of several tracts of land in Duluth's eastern section and in outlying areas. The major development is on the 244-acre upper campus. The School of Medicine is presently located on the 10-acre lower campus, but a new medical school building is now under construction on the upper campus.

## UPPER CAMPUS

UMD's upper campus affords not only a scenic view of Lake Superior but also quick access to downtown Duluth and area community centers. Located on a site given to the University by Duluth citizens and civic groups, it is being developed by University architects, site planners, and UMD faculty, staff, and students.

Buildings completed on the upper campus include:

**Administration Building**—Completed in 1971, this five-story building provides offices, conference rooms, special purpose workrooms, and shipping, mailing, and quickprint facilities. Student services, including Admissions, Records, Financial Aids, Housing, Counseling, and Advisement are located on the first floor. The upper floors of the building house administrative offices: the Business Office, the University Relations Office and News Service, the Alumni Office, Plant Services, Student Affairs, Continuing Education and Extension, the Provost's Office, Academic Administration, the Lake Superior Basin Studies Center, and the Graduate School. The Administrative Data Processing Center, quickprint service, and mailroom are located in the basement.

**Marshall W. Alworth Hall**—This building houses the Department of Physics office, faculty offices, physics laboratories, classrooms, the observatory, the Computer Center, the Program in Dental Hygiene; and a lecture hall for 156 persons. It connects to the Marshall W. Alworth Planetarium. The School of Social Development is temporarily housed in this building.

**Marshall W. Alworth Planetarium**—The Planetarium, located at the western end of the campus building complex, is used by UMD students, area public school students, and the public. The Planetarium is named for Marshall W. Alworth, who provided funds for the facility.

**A. B. Anderson Hall**—This building accommodates the Departments of History, Philosophy, Speech, and Sociology. It also contains nine uniquely designed case-study rooms, faculty offices, and several art studios.

**Bohannon Hall**—This building provides classrooms and offices for the Departments of Elementary and Secondary Education and the Department of Psychology. Special facilities include psychology laboratories, a reading clinic, an educational media center, and a 395-seat auditorium. The offices of the College of Education are located on the first floor.

**Chemistry Building**—The Department of Chemistry office, faculty offices, chemistry laboratories, a 150-seat and a 400-seat lecture hall are located in this building.

**Field House**—Connected to the Physical Education Building by tunnel, this 240-by 164-foot open-span structure with composition floor provides indoor track, tennis courts, volleyball courts, and indoor facilities for physical education classes, intramural sports, recreation, and athletic practice.

**Griggs Field**—This field is named after Richard L. Griggs, who provided funds for the facility. It includes a 3,800-seat stadium with lighting for night football games.

**Health Service**—Offices and examining rooms for the Health Service are located at 1215 University Circle. A full-time staff of doctors and nurses is available during daytime hours for student consultation and treatment.

**Home Economics Building**—Located on Ordean Court, this structure includes, in addition to the Department of Home Economics, several general purpose classrooms, two auditorium units, the Departments of Political Science and Communicative Disorders.

**Humanities Building**—This building currently accommodates the classrooms, studios, and faculty offices of the Departments of Art, Music, English, and Foreign Languages and Literatures, and houses KUMD-FM and the offices of the School of Fine Arts.

**Industrial Education Building**—Laboratories, classrooms, and faculty offices of the Department of Industrial and Technical Studies are located in this building.

**Kirby Student Center**—Named to commemorate Stephen R. Kirby, Duluth and Iron Range civic and business leader who made the major individual contribution toward its construction, the center includes student organization and activity rooms, the Campus Club, a cafeteria, a ballroom, a games room, a bookstore, and other special purpose rooms. A two-story addition above the bookstore provides space for the Bull Pub and The Rafter's, two popular student meeting places.

**Library**—The Library complex contains the main book (approximately 250,000 volumes) and periodical (approximately 2,000 publications) collections as well as several reading rooms. Duplicating and microfilm equipment are also available in the Library. The Health Science Library is presently under construction as an addition to the Library Building. Library services also include nonprint material, such as films, filmstrips, recordings, and videotapes, and the equipment for their use.

**Life Science Building**—The Department of Biology office, faculty offices, biology laboratories, the Olga Lakela Herbarium, a greenhouse, classrooms, and two 200-seat lecture halls comprise this facility.

**Lund Plant Services Building**—Located just off College Street, this facility houses shops and garages for Plant Services and the heating plant.

**Marshall Performing Arts Center**—This center, which includes a 600-seat theatre, the Dudley Experimental Theatre, classrooms, and offices, provides performance and rehearsal space for the Department of Theatre and performance space for many music, dance, and other performing groups from both on and off campus.

**Mathematics-Geology Building**—This building houses the offices of the Departments of Mathematical Sciences and Geology, faculty offices, mathematics and geology laboratories, and general purpose classrooms. The offices of the College of Letters and Science are located on the first floor.

**Ordean Court**—Located on the east side of the campus, the court is a memorial to Albert L. Ordean. The court contains the statue of Daniel Greysolon, Sieur du Luth, which was created by Jacques Lipchitz.

**Physical Education Building**—This building includes a large and small gymnasium for men and for women, a swimming pool, classrooms, faculty offices, and special purpose rooms. Track facilities, playing fields, and tennis courts are located near the building, and a broomball court is maintained nearby during the winter.

**Residence Hall Dining Center**—Located between Kirby Student Center and the residence hall complex, this center houses dining facilities for 1,500 students in an overhead bridge structure and a complete service-delivery facility underground.

**Residence Halls**—Four residence halls are available to house 980 single students on the upper campus. They include Burntside Hall, Griggs Hall, Vermilion Hall, and Lake Superior Hall. The Villages, consisting of 76 apartment units each housing four students, are located in an attractive wooded area on campus. A student service center for these units was completed in 1971. The Stadium Apartments, three modern apartment buildings located along a wooded creek, house 300 students.



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**ROTC Building**—This compact structure provides offices for the AFROTC staff, classrooms, a cadet lounge, and supply and other facilities.

**Social Science Building**—Classrooms, laboratories, and faculty offices for the Departments of Geography, Business Administration, Accounting, and Business, Office and Economic Education are provided in this building. It also houses the offices of the School of Business and Economics.

**Tweed Museum of Art**—Adjoining the Humanities Building, the Tweed Museum, donated by Mrs. Alice Tweed Tuohy and her daughter, Mrs. John W. (Bernice Tweed) Brickson, includes exhibition and storage facilities for the Tweed collection of paintings. A major addition to the Tweed Museum, funded by Mrs. Tuohy, was dedicated November 5, 1965. The Board of Regents named it the Alice Tweed Tuohy Room. A new addition, now under construction, will provide additional display space, offices, and a small auditorium.

**William R. Bagley Nature Area**—This 13-acre tract is a unique study and recreational area immediately adjacent to the campus. Included in the area are 2 miles of nature trails, an observation deck, a ski slope with rope tow, and a flora of unusual diversity. Much of the area included in the arboretum was donated to the University by the William R. Bagley family.

## LOWER CAMPUS

The lower campus includes buildings constructed prior to 1947. They accommodated UMD's predecessors, the Duluth State Teachers College and the Duluth State Normal School.

**Main Building**—Offices maintained in this building include the North Central Forest Experiment Station, Duluth Office; the South St. Louis County Agricultural Extension Service; the Cooperative Extension Service; and overflow offices, classrooms, and laboratories of the School of Medicine.

**School of Medicine**—Located at 2205 East Fifth Street, this former classroom building now provides teaching and research space for the UMD medical education program. The building was converted in 1972 for temporary use by the School of Medicine. The new Medical School Building, now under construction, should be completed in 1978.

**Torrance Hall**—This residence hall on the lower campus has recently been renovated and refurbished and houses 94 students.

**Washburn Hall**—A former residence hall, Washburn now is used for office and research space.

Bus service is provided between the lower campus and the Kirby Student Center on the upper campus.

## OTHER FACILITIES

Donors also have contributed several other properties to UMD. These include:

**Alworth Apartments**—These apartments, located in buildings on the former Royal D. Alworth estate, are used as temporary housing for new faculty and staff members.

**Limnological Research Center**—This center for limnological work on Lake Superior, located at the mouth of the Lester River, provides summer laboratory space for University scientists.

**Provost's Residence**—The former George P. Tweed home, located at 2531 East Seventh Street, was given to the University by Mrs. Alice Tweed Tuohy.

## **LIBRARY AND LEARNING RESOURCES SERVICE**

The Duluth campus Library and Learning Resources Service handles both the conventional library services and all other nonprint resources related to curriculum, research, and individual study and recreational reading. A collection of some 250,000 volumes (including microformats), well over 2,000 periodical subscriptions, and several hundred films, filmstrips, and video and audio recordings is augmented by the Library's membership in the MINITEX system, which makes available the combined resources of most of the libraries in the state through a teletype network. Access to the resources of the Center for Research Libraries and of the British Library Lending Service is also possible through MINITEX.

The first floor of the Library houses the Non-Print Division, which services audio and video resources for both individual and class use, as well as the Teaching Materials Library and the Children's Library, which provide materials mainly for students in the College of Education.

The second and third floors contain the print library services as well as study areas scattered through the stacks, machines for reading all types of microformats, and facilities for photoduplication from both hard copy and microformats. A reference librarian is on duty virtually all hours the Library is open.

The rapidly growing Health Sciences Library is at present located on the third floor, but will move by 1978 into a building of its own, connected to the main Library building. It offers professional reference services to the medical community of the area through a regional consortium. This library also houses a computer terminal through which bibliographical searches of technical literature may be made via the data bases of Medline, Lockheed Company, Systems Development Corporation, and Bibliographic Retrieval Services.

On the first floor of Bohannon Hall is the Instructional Development Laboratory, which is equipped to assist faculty and students in the production of teaching aids such as transparencies, slides, audiotapes, videotapes and graphics. It also handles the closed-circuit television studios and all audiovisual equipment in multipurpose classrooms.

The Library houses the campus Archives as well as a special Voyageur Collection related to the history of the Minnesota Arrowhead region. An Area Research Center, which collects and services manuscripts on the history of northeastern Minnesota, is being developed in cooperation with the State Historical Association and the St. Louis County Historical Society. It is located on the third floor of the Library.

## **Services**

### **UNIVERSITY HEALTH SERVICE—DULUTH**

The University Health Service is located at 1215 East University Circle situated between the Village Apartments and Lake Superior Hall. Medical care is available from 8 a.m. to 4 p.m. Monday through Friday; a nurse is on duty during these hours. Patients who register between 9 a.m. and 3 p.m. may see a doctor.

Consultation services are available without charge to all students who have paid the Health Service portion of the student service fee. Services include immuniza-

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tions, Mantoux and allergy shots, history and physical examinations (except during the first 3 weeks of fall quarter), treatment of illnesses and injuries, diathermy, laboratory tests, and selected personal and preventive health therapy. Appointments are necessary for physical and pelvic examinations. House calls will be made in case of an emergency; a standard fee will be charged for such calls. Many commonly used medications are available on a cost basis when prescribed through the Health Service.

Students requiring psychiatric evaluation may see one of the Health Service doctors or may be referred to the Counseling Office, 184 Administration Building, where a staff of trained counselors may be consulted. The counselors or the Health Service doctors may also refer such patients to the Human Development Center for further specialized care.

For emergencies after Health Service hours, students may obtain medical and surgical care by reporting directly to the emergency room at either St. Luke's or St. Mary's Hospital. For this service, charges will be made either to the student's insurance company or the student.

The Health Service will defray emergency ambulance service through the Gold Cross Ambulance (722-0807) or Med-A-Van Ambulance service (723-1212) to transport acutely ill or injured students from UMD to the emergency room of a Duluth hospital after office hours. However, an attempt should be made to notify the Campus Police (726-7197), as it provides free transportation for students. The Twin Ports Convalescent, Inc., service can be used at a much lower fee, but it does not provide emergency transportation—the student must wait his or her turn. For emergency ambulance service between the hours of 8 a.m. and 4 p.m. students should contact the Health Service first.

## **SPEECH AND HEARING CLINIC**

The Speech and Hearing Clinic has facilities for University students with speech and/or hearing disorders. Students who desire remedial help should apply at 5 Home Economics Building early in the quarter.

## **FOOD SERVICE**

A complete variety of food services is available ranging from a la carte dining in the cafeteria, Bull Pub snack bar, or vending services in the VenDen to a variety of meal plans for residence hall or off-campus students in the Dining Center. Special food service, ranging from simple luncheons to buffets or banquets, can be arranged with the Food Service Department. (See the section on Housing for details of room and board accommodations.)

## **BOOKSTORE**

The University Bookstore, stocked with textbooks, school, art, and office supplies, collegiate specialties, and other materials needed by students and faculty members, is located in the Kirby Student Center. The Second Edition, a bookstore annex, offers paperbacks and trade books in a pleasant, browsing atmosphere.

The Bookstore maintains, for student convenience, two plans for the disposal of used books. At the end of each quarter, the Bookstore buys back, for cash, used textbooks that will be used the following quarter; there may be limitations on the number of textbooks that can be bought back. The buy-back price is 60 percent of the new book price. The Bookstore also has an exchange plan under which a textbook is left at the Bookstore, and when and if the book is sold, the student is then paid by check for the book. If the book is not sold, the student gets the book back. Under this plan, the student receives 65 percent of the new book price.



## **WDTH-FM**

The 100,000-watt stereo voice of the Duluth campus, WDTH-FM, provides cultural, educational and informational programming of interest to listeners in all of northeastern Minnesota.

Its United Press International wire service reports and coverage of the campus provide continuous, meaningful news programs throughout the week. Every effort is made to broadcast—live or by tape—workshops, seminars, and speeches not otherwise covered by local commercial stations. Musical programming ranges from rock to jazz to the classics, for the enjoyment of both campus and community listeners.

Since WDTH-FM is largely student operated, it provides an excellent opportunity for experience that relates to course work and to future occupational plans.

## **INTERCOLLEGIATE, INTRAMURAL, AND RECREATIONAL PROGRAMS**

**Intercollegiate Athletics**—A wide variety of varsity sports, for which credit may be earned, is available to all UMD students. A complete listing of these may be found in the College of Education (Department of Health and Physical Education and Recreation) section of this bulletin. UMD is a member of the Northern Intercollegiate Conference, the Western Collegiate Hockey Association, and the Minnesota Association of Intercollegiate Athletics for Women. Conference contests are held at Griggs Field (football, track and field); the Duluth Arena (ice hockey); Wade Stadium (baseball); the Physical Education Building (basketball, volleyball, wrestling); UMD courts and fields (tennis, softball); the UMD pool (swimming and diving); and the two Duluth municipal courts (golf, cross-country).

**Intramurals**—This program is widely expanding to include the many sport activities indigenous to the Duluth area as well as the more traditional kinds of activities. The facilities, including a new synthetically surfaced Field House, are available for use on weekends as well as throughout the week. I.M. activities include: broomball, cross-country and downhill skiing, ice hockey, track and field, touch football, golf, tennis, softball, table tennis, badminton, basketball, volleyball, and swimming.

**Recreation**—Virtually all seasonal sports and recreational activities may be enjoyed in the close environs of UMD. A ski hill with a rope tow is within a quarter mile of the campus, and adjacent to it is a well-groomed series of cross-country ski trails. Spirit Mountain, a 15-minute drive from campus, offers eight downhill runs as well as cross-country trails and four-season usage. A lake on the campus offers canoeing opportunities. Canoes and paddles are available from the Department of Health and Physical Education and Recreation. Sailboats are owned by UMD and may be used by qualified students. Beautiful St. Louis Bay, which offers a spectacular view of the entire Duluth hillside, is used for the sailing. Two championship caliber municipal golf courses are available from May through mid-October. Excellent areas for both stream and lake fishing are located within minutes of the campus. The entrance to the Boundary Waters Canoe Area is a 3-hour drive from UMD.

## **ALUMNI ASSOCIATION**

The UMD Alumni Association is a campus-based organization, independent of the University of Minnesota Alumni Association located in St. Paul.

Membership is open to graduates of UMD, Duluth State Teachers College, and Duluth State Normal School. Patron memberships are open to non-UMD graduates.

The association, governed by a 14-person board of directors, sponsors programs including student recruitment, career advisement, travel, representation on

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UMD committees, Athletics Weekend, reunions, chapter events, social functions, an annual meeting, and activities that further campus-community relations.

Members of UMDAA receive a publication, the *Alumnotes*, which contains campus and alumni news, discounts for selected campus functions, and other benefits.

## COMPUTER CENTER

The UMD Computer Center provides computing services to students, staff, and faculty.

Currently, the main computer, located in 143 Marshall W. Alworth Hall, is a Control Data 3200 with 65,536 words (262,144 bytes) of high speed core storage, 40 million bytes of on-line disk storage, and the main batch peripherals (card reader, line printer, punch, and magnetic tapes). An adjacent workbook in 177 Marshall W. Alworth Hall contains teletype terminals and keypunches. Additional time-sharing terminals and keypunches are available in the Mathematics Machines room, 338 Mathematics-Geology Building, the Business Machines room, 110 Social Science Building, 139 Chemistry Building, the Departments of Secondary Education and Physics, and at other locations. Two remote batch terminals, located in the Computer Center, provide remote batch job entry to the CDC Cyber 74 in Minneapolis. Time-sharing service is provided by 16 ports on a CDC 6400 and 4 ports on the Cyber 74.

Consultants are available in the principal computer facility on the second floor of Marshall W. Alworth Hall.

## LAKE SUPERIOR BASIN STUDIES CENTER

The Lake Superior Basin Studies Center is a multifaceted research, education, and public service center composed of an interdisciplinary team of scientists, educators, and planners. Established by act of the state legislature and funded by a special appropriation, the center provides a sound basis of fact, experience, and expertise to assist people making management decisions related to the resources of Lake Superior and adjacent land areas. The center's interests encompass all the resources of the Lake Superior Basin: geographical, chemical, biological, geological, physical, economic, institutional, and human. Its programs are implemented through a central office and three laboratory support groups consisting of an Analytical Laboratory, an Environmental Services Laboratory, and a Limnological Laboratory, which operates the center's two research vessels.

## MINNESOTA MARINE ADVISORY SERVICE

Established on the Duluth campus in January 1975, the Marine Advisory Service is a cooperative program operated by the federal government through the Office of Sea Grant and the University. The purpose of the Sea Grant program is to aid in the conservation and development of the nation's coastal resources through education, applied research, and advisory services.

As part of both the Agricultural Extension Service and Continuing Education and Extension, the Minnesota Marine Advisory Service has the facilities and expertise of the University system to draw upon. Its affiliation with the Office of Sea Grant provides additional access to the knowledge and expertise acquired by Sea Grant programs carried out on our nation's four coasts. With trained specialists working in the community, the Minnesota Marine Advisory Service provides education and information concerning the "edge of the Arrowhead" region to government, industry, and private citizens.



## II. SPECIAL EDUCATIONAL PROGRAMS AND OPPORTUNITIES

In addition to the basic academic programs offered by the six collegiate units of UMD and the Graduate School of the University of Minnesota, a substantial number of special educational programs and opportunities are available, both to UMD students as well as residents of northeastern Minnesota. Students are strongly urged to carefully examine these programs and opportunities when considering attendance at UMD and when planning programs while attending UMD.

### AEROSPACE STUDIES

(U.S. Air Force Reserve Officers' Training Corps)

Four-year and 2-year commissioning programs are offered to both men and women. Under the 4-year program, students register for Air Force ROTC in their freshman year and complete a 4-year academic curriculum that includes a 4-week summer field training program between their sophomore and junior years. The General Military Course (freshman and sophomore years) requires 2 hours per week; the Professional Officer Course (junior and senior years) requires 4 hours per week. These hours include 1 hour per week of corps training.

Enrollment in the General Military Course does not confer military status upon cadets nor does it involve a military service obligation. Upon approval of the professor of aerospace studies, a student may obtain a waiver of the General Military Course, or portions of the course, on the basis of honorable active United States military service. In addition, Air Force ROTC credits are transferable between colleges or universities hosting the ROTC program.

Students electing the 2-year program complete the last 2 years of Air Force ROTC (Professional Officer Course) after attending a 6-week field training program during the summer immediately preceding their last 2 years at the University. The 2-year program is open to both graduate and undergraduate students. Students in the 2-year program complete the General Military Course academic program at summer field training and can receive credit, by examination, for that portion of the program. This is required for a 2-year student who plans to minor in aerospace studies.

Applicants qualified for flight training must be able to complete graduation requirements and be commissioned prior to reaching 26½ years of age. Other applicants must be able to complete graduation requirements and be commissioned prior to reaching age 30. Students with Air Force ROTC scholarships must be under 25 years of age prior to June 30 of the year in which they are commissioned. In addition, prior to entering the last 2 years of Air Force ROTC, the student must take the Air Force Officer Qualifying Test, pass an Air Force medical examination, be approved by an interview board, and successfully complete the summer field training program.

Uniforms, textbooks, and related materials are furnished to cadets without charge. All cadets receive \$100 per month during the academic portions of their junior and senior years. (There are additional benefits for those awarded a scholarship.) During summer field training, students also receive food, uniforms, housing, medical care, transportation to and from camp, and pay.

Cadets who are pilot candidates and do not have a private pilot's license receive 25 hours of flight training conducted by a civilian flying school near the campus. There is no charge to the cadet for this training. Female cadets are not currently eligible for flight training or missile duty.

Students successfully completing the requirements for an academic degree and the Air Force ROTC program are commissioned as second lieutenants in the U.S. Air



Force. Students not programmed for flight training incur a 4-year active duty commitment. Students who enter flight training on active duty incur a 5-year commitment after completing flight training.

## **CONTINUING EDUCATION AND EXTENSION**

A variety of special educational opportunities are offered through University of Minnesota division of Continuing Education and Extension. These include both on- and off-campus University-level certificate, degree, and special noncredit curricula, including on-campus degree-credit evening courses generally available to regularly enrolled students at UMD. A unique opportunity is available through an experimental program offered jointly by UMD and Continuing Education and Extension in which regularly enrolled full-time undergraduate students at UMD may enroll in evening classes as a part of their regular course load without payment of additional tuition and fees. For further information about this program, contact the Office of the Registrar or Continuing Education and Extension, Duluth Center.

Degree programs as well as selected certificate programs are available to individuals through Continuing Education and Extension at UMD. Students who plan to use extension credits to meet UMD degree requirements must meet all curricular requirements of UMD as stated in this bulletin. In addition, a student must establish contact with the selected major department and apply for upper division standing in the Office of the Registrar before beginning work in the upper division with a view to graduation. Such students will be assigned to an upper division adviser in the selected major field by contacting the Orientation and Advisement Office and may also receive guidance and counseling assistance by contacting the Counseling Office. Credits earned through Continuing Education and Extension are treated as residence credit by UMD for students pursuing undergraduate degrees at UMD. Individuals wishing to receive Graduate School credit through Continuing Education and Extension must be admitted to the Graduate School or working toward a graduate degree elsewhere prior to registration for credit. Since there are restrictions on the total amount of credit that may be earned through Continuing Education and Extension and applied toward a Graduate School degree, students should contact the Graduate School well in advance of the intended date of beginning studies.

Students wishing residence credit for work taken through Continuing Education and Extension may request transfer of their graduate or undergraduate grades in the Office of the Registrar.

For additional information, contact Continuing Education and Extension, Duluth Center, 403 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

## **FINE ARTS PROGRAM**

Students interested in the fine and performing arts may take an active part in theatre, dance, chorus, band, orchestra, jazz, and chamber music groups.

The University Theatre and Summer Theatre companies stage six major productions year round, including musicals, dramas, and comedies. All University students, regardless of major or vocational interest, are encouraged to participate. Credit is available for all phases of production work.

The Department of Music sponsors a diversity of student groups for those with vocal or instrumental interests. These groups give regular campus concerts. Some groups tour the state, the nation, and even travel internationally.

The Department of Art offers many courses of general interest in both studio work and art history. The Tweed Museum of Art offers activities and exhibitions for interested students.

## **LAKE SUPERIOR ASSOCIATION OF COLLEGES AND UNIVERSITIES**

The Lake Superior Association of Colleges and Universities is an organization composed of seven institutions of higher education in the Lake Superior region. Formed in 1973, member institutions include the College of Saint Scholastica, Lakehead University, Michigan Technological University, Mount Senario College, Northland College, University of Wisconsin-Superior, and UMD. The basic purpose of the association is to provide expanded educational opportunities to all students and residents in the Lake Superior region. A number of programs of the association facilitate expanded educational opportunities such as sharing of library resources and sharing and exchange of faculty members among the member institutions. Of particular interest to UMD students is the program of interinstitutional cross-registration between UMD, the University of Wisconsin-Superior, and the College of Saint Scholastica, all located in the Duluth-Superior community. The original interinstitutional cross-registration program involving UMD and the College of Saint Scholastica has been in operation for a number of years and predates the establishment of the Lake Superior Association. Through efforts of the association, in 1974 cross-registration was extended to include the University of Wisconsin-Superior, and the three institutions are now considering the adoption of a common calendar to further enhance cross-registration opportunities for students.

Under the interinstitutional cross-registration program, any student enrolled full time at UMD is permitted to enroll in courses offered at the University of Wisconsin-Superior or at the College of Saint Scholastica without the payment of additional tuition or fees provided that space is available in the selected course at the participating institution and the student's adviser at UMD approves. Because the basic purpose of the program is to provide expanded educational opportunities to students at the participating institutions, it is generally not acceptable to select at another institution a course equivalent to one offered at the student's resident institution.

For additional information concerning the cross-registration program, students should consult their adviser or contact the Office of the Registrar at UMD.

## **LIBERAL EDUCATION PROGRAM**

The Liberal Education Program at the University of Minnesota, Duluth, strives to accomplish the following objectives—development of the art of critical thinking, examination of basic values in light of the thought and experience of humankind, preparation for leadership and social responsibility including tolerance of the ideas of others, encouragement of broad cultural and intellectual interests, and development of effective communication abilities.

The program consists of a required lower division curriculum designed to insure that a student attains a background in each of the broad areas of knowledge and develops adequate communication skills, and an upper division program that involves study in depth in an area or areas of particular interest to each student. The upper division program is an integral part of a student's major or specialized degree program.

*All students who are candidates for the associate in arts or any baccalaureate degree are required to complete the Lower Division Liberal Education Program as*



*presented on the following pages.* Students who are candidates for a specialized associate degree, such as the associate in science in dental hygiene, are not required to complete this program, but must complete other requirements specified for their chosen degree program. *In addition, advanced standing transfer students who are candidates for a baccalaureate degree and who have completed at another institution an associate or a baccalaureate degree program that contains a minimum of 45 credits of course work comparable to the course work required for the UMD lower division liberal education requirements are considered to have met the UMD lower division liberal education requirements.* Such students will not be required to complete additional lower division liberal education course work.

Although described as a lower division program, most students will probably not complete all requirements in their first 2 years of study. It is the students' responsibility to select, in consultation with their adviser, the specific liberal education courses that best serve their needs. In planning a program in the lower division, students should take courses that are prerequisites for upper division courses in the major, minor, or degree programs selected. Students enrolled in a preprofessional program who do not intend to complete either an associate or a baccalaureate degree at UMD are not required to complete the Lower Division Liberal Education Program. However, such students should carefully select liberal education courses in consultation with their adviser in order to meet requirements of the college or institution in which they intend to complete their degree.

## Lower Division Liberal Education Program

The Lower Division Liberal Education Program, required of all candidates for all associate in arts and baccalaureate degrees, consists of two components. The freshman composition component is designed to develop the individual student's written communication skills and should be completed, if possible, during the first year in attendance at UMD. The liberal education distribution requirement component is designed to expose students to the four basic categories of knowledge. To the extent possible, students should complete most of this component while in the lower division.

### FRESHMAN COMPOSITION

(Engl 1106-1107—4 cr each)

**Credit by Examination in Freshman Composition**—Students who score (a) 5 or 4 on the advanced placement examination, (b) 3 on that examination and C+ on an essay examination administered by the English Department, or (c) in the 75th percentile or above on the CLEP *subject* examination in English Composition (without the optional essay) will be granted credit in Engl 1106-1107.

Students who score (a) in the 48th to the 74th percentile on the CLEP *subject* examination in English Composition, or (b) in the 60th percentile or above on the CLEP *general* examination in English Composition will be granted credit in Engl 1106.

*Note*—The cutoff points on the CLEP examinations are subject to change.

### LIBERAL EDUCATION DISTRIBUTION REQUIREMENTS

Forty-eight additional credits are required, to be distributed among the following four categories of knowledge. No fewer than 9 credits and no more than 18 credits may be applied toward any one category, and no more than 12 credits from a



students's major field may be applied toward any one category of knowledge. Courses must be selected from a minimum of any two departments within each of the categories, and a minimum of 3 credits is required from at least two departments used.

*A maximum of 4 credits of physical education and recreation courses may be included in the 48-credit distribution requirements, with no more than 2 credits to be included in any one of the four categories. These credits cannot be used to satisfy the requirement that courses in each category must be selected from two departments.* (See Department of Health and Physical Education and Recreation course listings for liberal education physical education activity courses.)

## LIBERAL EDUCATION COURSES

**Category 1. Communication, Language, Symbolic Systems**—9-18 credits (English and foreign language communication skills<sup>1</sup>; linguistics, rhetoric, logic, and philosophic analysis; mathematics)

Engl 1501—Improving Reading Comprehension (4)  
Engl 1811—Introduction to Language (4)  
Fr 1101-1102-1103—Beginning French I-II-III (5 each)  
Fr 1201-1202-1203—Intermediate French (3 each)  
Ger 1101-1102-1103—Beginning German I-II-III (5 each)  
Ger 1201-1202-1203—Intermediate German (3 each)  
Jour 1102—Introduction to Mass Communications (4)  
Lat 1101-1102-1103—Beginning Latin I-II-III (5 each)  
Math 1083—Mathematics II, Elementary Education (3)  
Math 1156—Finite Mathematics (4)  
Math 1160—Calculus, A Short Course (4)  
Math 1185—Pre-Calculus Analysis (5)  
Math 1296-1297—Calculus I and II (5 each)  
Math 1501—FORTRAN Programming (3)  
Math 3561—Elementary Statistics (4)  
Math 3565—Statistics for the Social Sciences (4)  
Phil 1001—Problems of Philosophy (4)  
Phil 1003—Ethics and Society (4)  
Phil 1009—Principles of Right Reasoning (4)  
Phil 3280—Ethical Theory (3)  
Span 1101-1102-1103—Beginning Spanish I-II-III (5 each)  
Span 1201-1202-1203—Intermediate Spanish (3 each)  
Spch 1101—Rhetoric of Our Times (3)  
Spch 1111—Beginning Public Speaking (3)  
Spch 1202—Interpersonal Communication (3)

**Category 2. The Physical and Biological Sciences**—9-18 credits

Ast 1010—Descriptive Astronomy (3)  
Ast 1020—Descriptive Astronomy (3)  
Biol 1102—Biology and Man (5)  
Biol 1109-1110—General Biology (5 each)  
Biol 3009—Science, Biology, and Society (5)  
Biol 3011—Biology of Woody Plants (2)  
Chem 1101—Aspects of Chemistry (5)  
Chem 1103-1104—General Chemistry (5 each)  
Chem 1110-1111—General Chemistry (5 each)

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<sup>1</sup>All foreign languages are considered to be within a single departmental area.

## *Special Educational Programs and Opportunities*

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Chem 1130-1131—General Chemistry (5 each)  
Chem 3106—Chemistry in Modern Life (4)  
Geog 1403—Physical Geography (4)  
Geog 3412—Weather Elements (4)  
Geol 1100—Topics in Geol (1)  
Geol 1110—Introductory Geology (5)  
Geol 3131—Oceanography (4)  
HE 1470—Survey of Human Nutrition (3)  
Hlth 1101—Personal Health (2)  
Hlth 3101—Personal and Community Health (3)  
Hum 3051—Science and Civilization (4)  
IS 1101—Energy: Its Sources, Uses, and Future (3)  
Phys 1001-1002, 1003—Elementary Physics (4 each)  
Phys 1010—Ideas in Physics (3)  
Phys 1015—Highlights in Physics (3)  
Phys 1107-1108-1109—General Physics (5 each)  
Phys 3025—Space and Time in Relativity (3)

**Category 3. Man and Society**—9-18 credits (analysis of human behavior and institutions; development of civilization: historical and philosophical studies)

Amln 1100—Indian-White Relations, 1776-1887 (3)  
Amln 3051—American Indians in the 20th Century (4)  
Anth 1602—Prehistoric Man and Culture (5)  
Anth 1604—Cultural Anthropology (5)  
Anth 3602—Introduction to Archaeology (4)  
Anth 3622—Prehistoric Archaeology of the Old World (4)  
Anth 3624—Archaeology of North America (4)  
BA 3030—Business Environment (4)  
BA 3104—The Functions of Law (4)  
DN 3511—Dance History I: Primitive to Romantic (3)  
DN 3521—Dance History II: Romantic to Present (3)  
Econ 1002—Introduction to Economics (4)  
Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)  
Econ 3001—Radical Economics (4)  
Educ 1101—Education in Modern Society (4)  
Geog 1201—Man and His Habitat (4)  
Geog 1303—Cultural Geography (4)  
Geog 1305—Environmental Conservation (4)  
Geog 1312—Economic Geography (4)  
Hist 1054, 1055, 1056—Ancient Civilization (4 each)  
Hist 1154, 1155—English History (5 each)  
Hist 1204, 1205, 1206—Introduction to Modern Europe (4 each)  
Hist 1301, 1302, 1303—American History (4 each)  
Hist 1367—Civil Rights Movements, Recent America (4)  
Hist 3357—Women in American History (4)  
Hlth 3115—Consumer Health Education (3)  
Hum 1031—American Colonial Heritage (3)  
Hum 1032—American Frontier Heritage (3)  
Hum 1033—American Establishments, Minorities (3)  
Ind 3950—Safety Education (4)  
IS 1002—Values in Human Experience (4)  
IS 1100—Introduction to the Soviet Union (4)  
Math 3030—Mathematics for Liberal Education (0 to 5)

PE 3117—Sport and the American Society (3)  
Phil 1007—Philosophy of Religion (4)  
Phil 3110—American Philosophy (4)  
Phil 3290—Current Social Political Philosophy (4)  
Phil 3301—Greek Philosophy (4)  
Phil 3303—The Birth of Modern Philosophy (4)  
Phil 3421—Oriental Philosophies (4)  
Pol 1011—American Government and Politics (4)  
Pol 1050—International Relations (4)  
Pol 1100—Introduction to Political Science (4)  
Pol 1500—Contemporary Political Systems (4)  
Psy 1003—General Psychology (5)  
Psy 1501—Human Development and Adjustment (3)  
Soc 1100—Problems of American Society (5)  
Soc 1200—Introduction to the Family (4)  
Soc 1300—Introduction to Criminal Justice (4)  
Spch 1302—Mass Communication and Society (3)  
Spch 1432—Cinema and Society (3)  
SSP 1101—Personal Discovery and Growth (3)  
SW 1130—Development of Human Services (4)  
Th 1550—American Theatre History (4)  
Th 3551—History of the Theatre I (4)  
Th 3552—History of the Theatre II (4)  
Th 3553—History of the Theatre III (4)

**Category 4. Artistic Expression—9-18 credits (literature; the arts)**

Art 1001—Art Today (4)  
Art 1002—Introduction to Art (4)  
Art 1010—Drawing (3)  
Art 1011—Design (3)  
Art 1012—3-D Design (3)  
Art 1405—Ceramics (3)  
Art 1605—Fundamentals of Photography (3)  
Arth 1805—Art and Culture (4)  
DN 1500—Introduction to the World of Dance (4)  
Engl 1504, 1505—Masterworks of English Literature (4 each)  
Engl 1523—Medieval Literature I (4)  
Engl 1533—16th-Century English Literature I (4)  
Engl 1543—17th-Century English Literature I (4)  
Engl 1553—18th-Century English Literature I (4)  
Engl 1561—19th-Century American Literature (4)  
Engl 1565—Romantic Prose and Poetry I (4)  
Engl 1566—Victorian Prose and Poetry I (4)  
Engl 1572, 1573—20th-Century Literature (4 each)  
Engl 1905—Introduction to Literature (4)  
Engl 3223—Shakespeare (4)  
Engl 3271, 3371, 3471—Contemporary Literature (4 each)  
Engl 3511—Continental Literature (4)  
FA 1007—Arts in America (3)  
FA 1101, 1102, 1103—Survey of the Arts (4 each)  
FA 3101—Jazz Studies (4)  
Fr 3511—Literature in Translation (4)  
Ger 3511—Literature in Translation (4)  
Hum 1001, 1002, 1003—Introduction to Humanism (3 each)  
Hum 1021—Classical Mythology (4)



Hum 1022—The Bible as Literature (4)  
Hum 1023—Folklore (4)  
Hum 3021—Classical Civilization and Archaeology (4)  
Hum 3071—Afro-American Heritage (3)  
Hum 3073—The Great Depression and the Arts (3)  
Mu 1001—Introduction to Music (3)  
Mu 1221, 1222, 1223—Musical Styles (2 each)  
Mu 1501<sup>1</sup>—Concert Band (1)  
Mu 1502<sup>1</sup>—Varsity Band (1)  
Mu 1511<sup>1</sup>—University Singers (1)  
Mu 1512<sup>1</sup>—University Choral Society (1)  
Mu 1551<sup>1</sup>—Orchestra (1)  
Phil 3001—Existentialist Literature (3)  
Span 3511—Literature in Translation (4)  
Th 1110—Acting: Fundamentals (4)  
Th 1500—Introduction to Theatre Arts (4)

## **OFFICE OF SPECIAL PROGRAMS**

The Office of Special Programs coordinates the following programs: (1) Interdisciplinary Studies—Students may submit a major of their own design for consideration and approval by the Office of Special Programs and the Interdisciplinary Studies Committee. Courses that are interdisciplinary in scope and content are coordinated through this office; (2) Freshmen Studies—A specially designed core of courses is offered each year to a selected group of freshmen students; (3) International Study—Arrangements to earn academic credit through study abroad may be made through this office; (4) University College; and (5) The intra-University Educational Development Program.

## **Interdisciplinary Studies**

### **MAJOR IN INTERDISCIPLINARY STUDIES FOR THE B.A. DEGREE**

The major in interdisciplinary studies is designed for those students whose educational objectives can best be realized through an integration of courses from two or more departments. Students who select this major will be required to compose a statement of their educational objectives, ordinarily prior to completion of the sophomore year. Requirements include a minimum of 45 upper division credits in two or more departments plus a senior project or seminar. A minimum of 57 upper division credits must be completed.

The bachelor of arts requirement of completion of 30 credits of work outside the major department in courses numbered 3000 or above is waived for interdisciplinary studies majors.

All interdisciplinary studies majors are required to complete a creative or scholarly project during the senior year. The project should be uniquely appropriate to the major and should be developed with both a unique objective and a broad selection of course work in mind. The purpose of the project might be to integrate the knowledge and skills acquired through course work, but the emphasis should be placed on creativity and scholarship. The senior project carries from 7 to 15 credits.

Interdisciplinary studies majors will be assigned an additional identification title

<sup>1</sup>With the restriction that no more than 6 credits can be used to fulfill liberal education requirements.

that reflects their area of specialization; for example, interdisciplinary studies—international relations, interdisciplinary studies—American studies, interdisciplinary studies—humanities.

## **Freshman Studies**

The Freshman Studies Program is offered each fall quarter to a selected group of entering students. The program consists of four courses, one of which is an interdisciplinary orientation to the University. Other courses may include studies in English, physical education, and history. The purpose of the program is to provide students with a small-group learning situation. Enrollment is limited, and admission is by invitation or permission of the participating faculty members.

## **International Study**

The University of Minnesota offers a number of opportunities for international study and also participates in several cooperative programs for study and travel, including the Midwest Universities Consortium for International Activities (MUCIA). All programs are open to students at UMD. In addition to the many University-wide programs, several opportunities for study abroad are available only to UMD students. Arrangements for international study should be completed well in advance in order to avoid problems peculiar to study in a foreign country. Additional information may be obtained from the Office of Special Programs.

## **University College**

University College offers several learning and teaching alternatives to the traditional study and degree programs. In addition to granting the bachelor's degree, University College performs a number of service functions.

The course UC 3075, Independent Study, offers any University undergraduate student the opportunity to engage in study in an area not covered in regular course offerings. Course projects are frequently interdisciplinary in scope and content and may involve nontraditional teaching and learning resources. Credits are arranged for the course work; from 3 to 15 credits are awarded. All work done in the course is supervised and evaluated by a faculty member. Students should investigate normally scheduled opportunities for independent study before taking UC 3075. Applications for UC 3075 may be obtained from the Office of Special Programs, 409 Administration Building.

## **INTER-COLLEGE PROGRAM**

The Inter-College Program (ICP) allows a student to develop and pursue a cross-college curriculum not available in one of the standard programs offered by the University's colleges and schools. ICP is only appropriate for those students who know their educational and curriculum needs and who find they cannot achieve their goals without the assistance of an inter-college curriculum. Each program is individually designed and includes a large amount of upper division course work from more than one college within the University. Information concerning ICP is available from University College, 105 Walter Library, 117 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

## **Students' College Program**

Students' College is a student-operated organization sponsored by University College that directs its efforts toward creating and maintaining programs that offer students the opportunity to experience the practical side of management, leadership, and teaching skills. The program is based on the concept that students can learn the skills needed for productive citizenship not only through classroom instruction, but also through experience in the areas that they will enter upon graduation. Students' College consists of the Free Univer-City, Human Resource Bank, and Students' College Internship Program.

## **SUMMER SESSION**

(See *UMD Summer Session Bulletin*)

## **SUPPORTIVE SERVICES PROGRAM**

Supportive Services is committed to the development of a total program meeting the diverse needs of college-motivated students. Its specialized services include assessment, personalized program planning, skills and developmental course offerings, academic advisement, and developmental counseling.

Four major assistance components compose Supportive Services:

**Academic**—The purpose of this component is to provide a positive, success-oriented environment in which students may work to improve specific academic skills (reading, writing, mathematics, and study); improve communication skills; explore values and issues relating to self-concept; improve decision-making skills; and achieve a balance between cognitive and affective education. Supportive Services courses are listed in the Course Listings section of this bulletin.

The Supportive Services Reading Clinic is open to all students on the campus. With the help of clinic personnel and through the use of a wide range of materials and equipment, students may improve their comprehension, vocabulary, and reading rate.

**Cultural**—Supportive Services recognizes that students from different cultures may have unique concerns and needs while attending UMD and is developing services to facilitate the interaction between these students and other members of the University community.

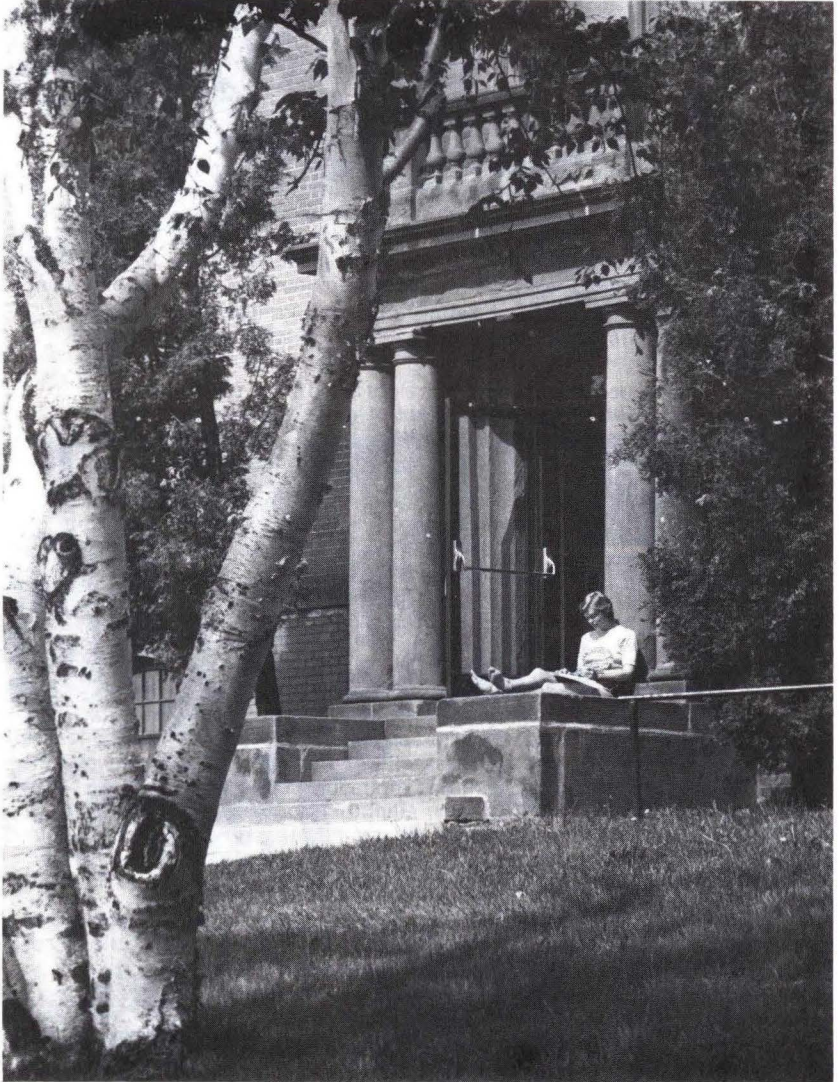
**Financial**—Specific funds have been designated by the University for the Supportive Services Program to aid deserving high-need students. There are also Supportive Services funds available for needy students from the annual faculty-staff financial aid drive and the emergency relief fund. These monies are allocated by the director of Supportive Services and the director of Financial Aids.

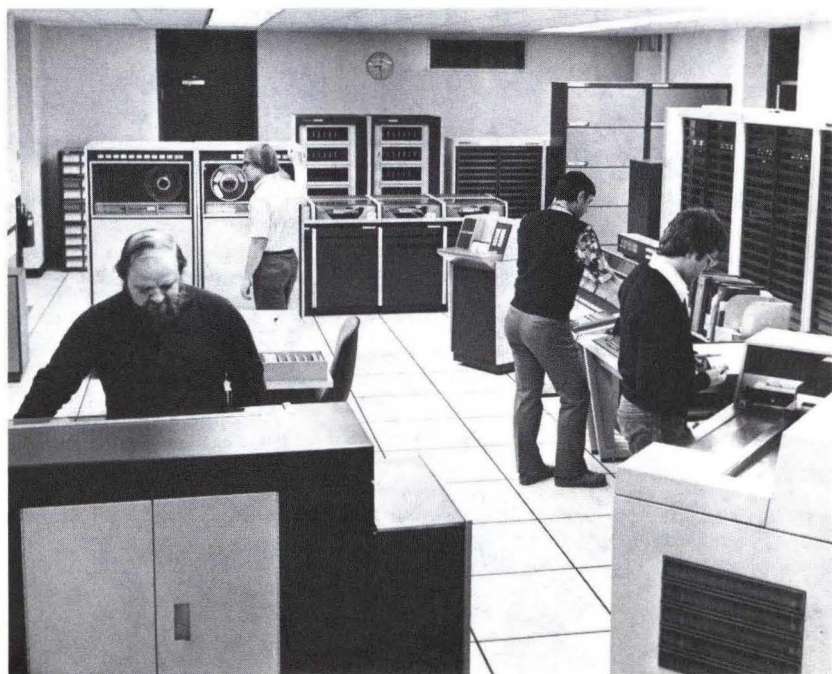
**Services for Physically Handicapped Students**—The physical facilities at UMD are well suited to serve physically handicapped students. This component of Supportive Services is a resource that the individual student may consult for information about on-and off- campus assistance in the areas of health care, counseling, placement, attendant care, transportation, equipment care, and similar concerns. The coordinator of services for the physically handicapped acts as a liaison to University offices, health services, vocational rehabilitation



programs, academic programs, counseling, attendant problems, and community organizations, both public and private.

**Assessment Program**—Students in the lower half of their high school class must present evidence of probable academic success at UMD. Such evidence must include test scores (ACT, PSAT) and other materials necessary for the assessment of academic skills. This component of Supportive Services provides this assessment.







### **III. SCHOOL OF BUSINESS AND ECONOMICS (SBE)**

Dean: Robert S. Hancock  
109 Social Science Building, 726-7281

The mission of the School of Business and Economics is to provide students with a broad professional and cultural education necessary for leadership in either the private or public sector. The school offers curricula designed to enable students to acquire lifetime skills, knowledge and appreciation of business and economic principles, and understanding of political, social, and economic systems. Related to the mission of professional education, the school encourages an environment of research, for its contribution both to new knowledge and to the economy of the region served. The school also recognizes its responsibility to serve the continuing education needs of business and industry and of the constituencies of the regional community.

The school includes the following departments: Accounting; Business Administration; Business, Office and Economic Education; and Economics.

Two undergraduate professional degree programs are offered by the school: the bachelor of accounting (B.Ac.) and the bachelor of business administration (B.B.A.). These degree programs are designed to prepare students for entry-level careers in business and have the following objectives:

1. To encourage a well-rounded liberal arts education through the prebusiness degree requirements and the selection of broad-based liberal arts courses outside the school.
2. To orient students to the basic tools and functional concepts of business and to equip them with the ability to apply management skills.
3. To prepare graduates to enter a management career or to pursue graduate study.

Undergraduate majors are offered in the Departments of Economics and Business, Office and Economic Education. Degrees awarded for these programs are not conferred by the School of Business and Economics.

The Department of Economics offers the major in economics for the bachelor of arts or bachelor of science degree. The B.A. and B.S. degrees are conferred by the College of Letters and Science. The B.A. degree is designed for students who have a liberal education interest in the field or desire to pursue graduate work. The B.S. degree in economics provides an intensive study of the discipline for those interested in career opportunities in economics in the private or public sector.

The Department of Business, Office and Economic Education offers a major in business and office education for the bachelor of applied science degree and a concentration in secretarial sciences for the associate arts degree. The B.A.S. degree is conferred by the College of Education, and the A.A. degree is conferred by the College of Letters and Science. Students who seek the B.A.S. degree generally pursue careers in teaching at the junior high, secondary, or post secondary vocational level. Students seeking the A.A. degree in secretarial sciences generally seek employment in the field of administrative services.

### **GRADUATE PROGRAM**

A master of business administration (M.B.A.) degree program is offered. This program is designed to prepare students for management careers in business, government, and nonprofit organizations such as labor unions, hospitals, and educational institutions. See the section on the Graduate School for further information.



## **UNDERGRADUATE PROGRAMS**

### **Admission Requirements**

**Freshmen and Advanced Standing**—Students are admitted to the School of Business and Economics as freshmen or advanced standing students for the pre-business curriculum. Freshmen must rank in the upper half of their high school class, and submission of test scores from the ACT, PSAT, or SAT is recommended. Advanced standing students must have a cumulative grade point average of at least 2.00 in all work and in prebusiness courses, and must have successfully completed 75 percent or more of all work attempted. Prebusiness course work for the bachelor of accounting and bachelor of business administration degrees may be taken at any campus of the University of Minnesota, any community college, or any accredited institution offering a comparable liberal education program. The general admission section of this bulletin describes the admission procedures.

**Admission to Candidacy**—Application for admission as a candidate for the bachelor of accounting or bachelor of business administration degree must be made through the dean's office. Students in residence must apply during the third quarter of the sophomore year (the quarter immediately following completion of 75 credits of prebusiness courses). The student must have: a cumulative grade point average of 2.00 or more, successfully completed 75 percent or more of all work attempted, and no more than three specifically required prebusiness courses remaining to be completed. Acceptance as a candidate for the degree is required prior to enrollment in upper division accounting and business administration courses. Advanced standing students applying for admission as a junior or senior will be evaluated for candidacy for the degree as a part of their admission evaluation. Each student accepted as a candidate for a degree will receive notice indicating the terms of candidacy and credits required.

**Admission for a Second Baccalaureate Degree**—A student is admitted to candidacy for either the bachelor of accounting or the bachelor of business administration degree. A student may apply for admission to candidacy for a second degree. Application may be made no earlier than the quarter in which all requirements for the first degree will be completed. A minimum of 45 additional credits is required for the second degree, 30 of which must be upper division credits in courses offered by the School of Business and Economics. Each student accepted as a candidate for a second degree will receive notice indicating the terms of candidacy and credits required.

## **ACADEMIC REGULATIONS, STANDING, AND PROGRESS**

### **Grading Options**

Students in the School of Business and Economics have the choice of two grading options, A-N or P-N. Students indicate the option they choose at the time of registration. Changes in course registration from A-N to P-N grading or vice versa may only be made during the first 2 weeks of the quarter by following the cancel-add procedures. The following policies apply to grading:

1. Bachelor of accounting and bachelor of business administration degree students must complete all accounting (Acct), business administration (BA), and required economics (Econ) courses on A-N grading unless a course is offered on mandatory P-N grading only.

2. The prebusiness requirements in mathematics, psychology, and sociology must be completed on A-N grading.
3. All courses included in a field of concentration for the B.B.A. degree must be completed on A-N grading.
4. General limits on use of P-N grading option must be observed. Refer to the Grading section of this bulletin.

## Grade Point Average

A student's University of Minnesota, Duluth, grade point average is computed on UMD work only. Grade points earned at other institutions are computed into an overall average but are not calculated into the UMD GPA. Thus, probation and graduation honors (discussed below), which are determined only on the basis of UMD work, are not affected by grade points earned at other institutions.

## Satisfactory Progress and Scholastic Standing

All students are expected to make satisfactory progress toward the bachelor's degree. Three levels of academic achievement have been established for accounting and business administration students and for students accepted as candidates for the B.Ac. and B.B.A. degrees. These levels of achievement are explained below. Levels of academic achievement and probationary action are based on UMD course work only. Grade point deficiencies accumulated at UMD cannot be offset by high grades earned at other academic institutions.

**Good Academic Standing**—A student with a cumulative grade point average of 2.00 or better and a successful completion ratio of 75 percent or better for all work attempted at UMD is considered to be in good academic standing. A student whose academic achievement falls below either of these levels will be placed on academic probation.

**Academic Probation**—Unless otherwise stipulated, a student placed on academic probation must make progress toward a return to good academic standing in each succeeding enrollment until all academic deficiencies are removed.

**Academic Dismissal**—Failure to meet probation conditions in two successive enrollments will result in academic dismissal.

## COLLEGIATE HONORS

The following scholarships and honors are available to students in programs of the School of Business and Economics.

### Scholarships

**Broeker Hendrickson and Company Accounting Scholarship**—A \$200 scholarship awarded to a junior accounting student who has maintained at least a B average in accounting courses. Accounting faculty makes the selection.

**Business Administration Club Scholarship**—A scholarship awarded to a sophomore, junior, or senior member of the Business Administration Club. Scholarship amount is determined by the club prior to each year's application deadline. Business Administration Club faculty members and students make the selection.

**Duluth Chapter, Minnesota Society of Certified Public Accountants Accounting Scholarship**—A \$100 scholarship awarded to a sophomore accounting student who has completed the first year accounting sequence with a B average. Accounting faculty makes the selection.

**Ernst & Ernst Accounting Scholarship**—A \$200 scholarship awarded to a junior accounting student who has maintained at least a B average in accounting courses. Accounting faculty makes the selection.

**Haskins and Sells Scholarship**—A \$300 scholarship awarded to a senior accounting student who has maintained at least a B average in accounting courses and a 2.50 grade point average overall. Accounting faculty makes the selection.

**St. Louis County Federal Savings and Loan Association Scholarship**—A \$400 renewable scholarship awarded to a major in business or economics. Recipients must live within 100 miles of St. Louis County Federal Savings and Loan Association offices in Duluth or Cook County, Minnesota.

## Honors and Awards

**Accounting Department Honors**—Awarded annually to graduating senior accounting students for outstanding scholastic achievement in the bachelor of accounting degree program.

**National Business Education Association Award of Merit**—An award presented to a senior in business, office and economic education in recognition of outstanding achievement in business education. The Award of Merit consists of a 1-year professional membership in N.B.E.A., an Award of Merit Certificate, 1-year's subscription to N.B.E.A. publications, and recognition in a feature article in the fall issue of *Business Education Forum*. Business, Office and Economic Education faculty makes the selection.

**Omicron Delta Epsilon**—Eligibility requirements for this international honorary society in economics include junior or senior standing, completion of a minimum of 18 credits in economics with a grade point average of 3.00 in these courses, and an overall grade point average of 3.00.

**Pi Gamma Mu**—Eligibility requirements for this national honorary society in the social sciences include a 3.00 grade point average in all social science courses, including business administration and economics, and an overall grade point average of 2.50.

**Chester A. Sorensen Memorial Award**—Awarded annually to junior accounting students for outstanding scholastic achievement in the bachelor of accounting degree program. Award includes a student membership in the National Association of Accountants.

**Wall Street Journal Award**—A student achievement award to a graduating senior consisting of a service medal and a 1-year subscription to the *Wall Street Journal*. The recipient of the award is selected by the School of Business and Economics faculty, and the recipient's name is engraved on a showcase plaque.



## ACADEMIC PROGRAMS

Majors and minors offered by the School of Business and Economics include the following:

- Major in business, office and economic education—accounting for the bachelor of applied science degree (CE)
- Major in business, office and economic education—comprehensive for the bachelor of applied science degree (CE)
- Major in business, office and economic education—secretarial for the bachelor of applied science degree (CE)
- Major in economics for the bachelor of arts degree (CLS)
- Major in economics for the bachelor of science degree (CLS)
- Minor in accounting for the bachelor of applied science degree (CE)
- Minor in accounting for the bachelor of arts degree (CLS)
- Minor in business administration for the bachelor of arts degree (CLS)
- Minor in economics for the bachelor of arts degree (CLS)
- Two-year program in secretarial sciences for the associate in arts degree (CLS)

### Bachelor of Accounting Degree (B.Ac.)

The bachelor of accounting degree program is designed to provide students with an analytical foundation of the discipline of accounting. Studies include the special tools and techniques of planning and control using financial and managerial accounting, income taxes, cost analysis and systems. This degree program is usually selected by students who are preparing for a career in private, governmental, or public accounting, or who wish to use accounting as general training for a career in business. Accounting also provides an excellent background for graduate or other professional education, including teaching.

### REQUIREMENTS FOR BACHELOR OF ACCOUNTING DEGREE

1. Complete at least 90 lower division prebusiness credits, as outlined in the degree program, with a minimum average of 2.00 (C). Apply for admission as a candidate for the degree prior to entering the upper division program.
2. Complete the remaining 100 credits as outlined in the degree program. A minimum of 40 credits must be taken after admission as a candidate for the degree.
3. A minimum grade average of 2.00 (C): (a) overall; (b) in all work taken after admission as a candidate for the degree; (c) in all upper division accounting, business administration, and required economics courses; (d) in all accounting courses.
4. Compliance with the general regulation governing granting of degrees. Each student is responsible for completing all requirements for the degree.

### Bachelor of Business Administration Degree (B.B.A.)

The bachelor of business administration degree provides basic preparation for careers in marketing, banking, industrial relations, management, finance, personnel administration, and production management. Such careers may be in business, government, public, or social service organizations. A management internship program and a management assistance and counseling program are available as part of the degree.

## **REQUIREMENTS FOR BACHELOR OF BUSINESS ADMINISTRATION DEGREE**

1. Complete at least 90 lower division prebusiness credits, as outlined in the degree program, with a minimum average of 2.00 (C). Apply for admission as a candidate for the degree prior to entering the upper division program.
2. Complete the remaining 92 credits as outlined in the degree program. A minimum of 40 credits must be taken after admission as a candidate for the degree.
3. A minimum grade average of 2.00 (C): (a) overall; (b) in all work taken after admission as a candidate for the degree; (c) in all upper division accounting, business administration, and required economics courses.
4. Compliance with the general regulations governing granting of degrees. Each student is responsible for completing all requirements for the degree.

## **ACCOUNTING (Acct)**

*Faculty*—Philip L. Friest, Ph.D., C.P.A., Associate Professor and Head; Robert E. Curtis, M.S., C.P.A., Associate Professor; John A. Dettmann, Ph.D., C.P.A., Professor; Fawzi G. Dimian, Ph.D., Professor; Lawrence J. Syck, Ph.D., Assistant Professor

The work of the accountant is firmly established as an indispensable service in the world of business, government, and social institutions. The accounting system is an essential quantitative information system in almost every organization. Professionally trained accountants serve in many areas of private business, in government at all levels, in public and social service institutions, and in the field of public accounting. The growing complexity of American business and multinational firms and the need for new approaches to business and social problems have increased the demand for professional accountants. Effective operations planning demands that relevant data be collected, analyzed intelligently, and reported coherently. Management needs assistance in directing activities to meet objectives and in adjusting operations to fit new conditions. Providing information for efficient allocation of resources is an important function of accounting in all organizations.

In private business, the accountant is employed by a single organization. The size and nature of the organization determine the scope of the accounting activities. Broadly defined, the following duties are typical: design and installation of accounting systems, preparation of financial statements and reports, cost accounting, internal auditing, interpretation and analysis of budgets, and preparation of tax returns.

Accounting for nonprofit organizations deals with providing information useful in the effective management of resources to achieve the goals of federal, state and local governments and of institutions such as universities, hospitals, and social service agencies.

The certified public accountant serves business and the public by rendering an independent professional opinion on the fairness of financial statement presentation based on an analysis of business operations and financial records. In Minnesota, the C.P.A. certificate is issued by the State Board of Accountancy to those individuals who have satisfied the specific experience requirements and have passed an examination in accounting practice, theory of accounts, auditing, business law, and professional ethics. Completion of the bachelor of accounting degree serves as the basic preparation for the C.P.A. examination and qualifies a student to take the examination immediately after graduation or in the final quarter of study.

The B.Ac. degree program also serves as the basic preparation for the examinations for the Certificate in Management Accounting and for the Certified Internal Auditor.

Two internship programs are available in the accounting program: Acct 3572, Internship in Public Accounting, and Acct 3575, Internship in Internal Accounting. These courses require full-time work for 1 quarter and give students an opportunity to gain insights into the application of accounting concepts and methods and to obtain experience that is helpful in making career decisions. The public accounting internships, usually taken during winter quarter, emphasize auditing and taxation. Internal accounting internships, usually taken during the summer, cover such topics as development of cost data for specific projects, accounting procedures review, and evaluation and operation of some phase of an accounting system.

## **BACHELOR OF ACCOUNTING DEGREE PROGRAM (B.Ac.)**

### **I. LOWER DIVISION—PREBUSINESS REQUIREMENTS**

- A. Freshman Composition—8 credits
  - Engl 11066—Freshman Composition (4)
  - Engl 1107—Freshman Composition (4)
  - (or) credit by examination in Freshman Composition
- B. Communication, Language, Symbolic Systems—11 credits
  - 1. Speech—3 credits
    - Spch 1104—Business Speech (3)
    - (or) Spch 1111—Beginning Public Speaking (3)
    - (or) Spch 1202—Interpersonal Communication (3)
    - (or) Speech requirement may be completed in the upper division by taking Spch 3231—Communication in Organization (3). In this case, choose an elective in Category 1 for liberal education distribution requirements.
  - 2. Mathematics—8 credits
    - Math 1156—Finite Mathematics (4)
    - Math 1160—Calculus, A Short Course (4)

Students who have completed 1 year of high school algebra and 1 year of high school geometry are advised to begin with Math 1156. A remedial course, Math 1110, is required of those students who have completed 1 year or less of high school algebra. Students interested in mathematics beyond elementary calculus may substitute Math 1296, Math 1297, and Math 3320 for Math 1156 and Math 1160.
- C. Electives in the Physical and Biological Sciences —9 credits
- D. Man and Society—18 credits
  - Econ 1004—Principles of Economics: Micro (4)
  - Econ 1005—Principles of Economics: Macro (4)
  - Psy 1003—General Psychology (5)
  - Soc 1100—Problems of American Society (5)
- E. Electives in Artistic Expression—9 credits
- F. Additional Prebusiness Requirements—20 credits
  - Acct 1511—Financial Accounting I (3)
  - Acct 1512—Financial Accounting II (3)
  - Acct 1513—Managerial Accounting (3)
  - Econ 1203—Statistical Methods (4)
  - Econ 1204—Quantitative Research Methods (4)
  - Math 1501—FORTRAN Programming (3)



A student with no previous study in keypunching, unit record principles, and computer data processing is encouraged to enroll in BOEE 1204 before enrolling in Math 1501. Math 1501 and Math 1156 may be taken concurrently. Math 1501 and Math 1110 may be taken concurrently if the student has completed 1 year of high school algebra.

G. Any liberal education elective courses—15 credits

**Total Lower Division—Prebusiness Requirements (90)**

## **II. UPPER DIVISION REQUIREMENTS**

### **A. Required Business Core Courses (31)**

- BA 3105—Business Law (4)
- BA 3204—Quantitative Methods I (5)
- BA 3241—Systems Analysis I (3)
- BA 3301—Production Management (3)
- BA 3304—Fundamentals of Management (3)
- BA 3362—Business Policy (4)
- BA 3601—Corporation Finance (3)
- BA 3701—Principles of Marketing (3)
- BA 3804—Personnel Administration (3)

### **B. Required Accounting Courses (31)**

- Acct 3501—Intermediate Accounting I (4)
- Acct 3502—Intermediate Accounting II (4)
- Acct 3503—Intermediate Accounting III (4)
- Acct 3507—Cost Accounting (4)
- Acct 3544—Income Tax Accounting (4)
- Acct 3546—Auditing (4)
- Acct 3548—Accounting Problems (4)

Upper division electives in accounting subjects (Acct 3572 and 3575 may not be used to satisfy this requirement) (3)

### **C. Required Supporting Courses (22-24)**

- BOEE 3104—Business Communications (3)
- Econ 3111—Microeconomic Analysis (5)
- Econ 3112—Macroeconomic Analysis (5)
- Upper division electives in psychology, political science, history, geography, economics, and sociology (9-11)

### **D. Additional upper division courses in any department, college, or school with a maximum of two courses in any one department (9)**

### **E. Any additional courses to meet the minimum requirements of 190 credits**

**Total Minimum Credits—Bachelor of Accounting Degree (190)**

## **MINOR IN ACCOUNTING FOR THE B.A. DEGREE (CLS)**

The minor in accounting for the B.A. degree is valuable to students who want to have an understanding of the accounting process and its applications in modern society. Completion of the minor offers training for entry into many positions in government, industry, and social service organizations that require an understanding of accounting but do not require the depth of knowledge provided by the B.Ac. degree program.

### **Required Supporting Courses (23)**

Econ 1004-1005—Principles of Economics: Micro and Macro (8)

Econ 1203—Statistical Methods (4)  
Math 1156—Finite Mathematics (4)  
Math 1160—Calculus, A Short Course (4)  
Math 1501—FORTRAN Programming (3)

**Required Minor Courses (25)**

Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting II (3)  
Acct 1513—Managerial Accounting (3)  
Acct 3501—Intermediate Accounting I (4)  
Acct 3507—Cost Accounting I (4)  
Minimum electives in upper division accounting courses (8)

**Total for Minor (48)**

## **MINOR IN ACCOUNTING FOR THE B.A.S. DEGREE (CE)**

The minor in accounting for the B.A.S. degree is designed for students who wish to teach accounting subjects in secondary and vocational schools. The minor also offers training for entry into many positions in government and social service organizations that require an understanding of accounting but do not require the depth of knowledge provided by the B.Ac. degree program.

**Required Supporting Courses (19)**

Econ 1004-1005—Principles of Economics: Micro and Macro (8)  
Econ 1203—Statistical Methods (4)  
Math 1501—FORTRAN Programming (3)  
Math 1156—Finite Mathematics  
(or) Math 1160—Calculus, A Short Course (4)

**Required Minor Courses (26)**

Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting I (3)  
Acct 1513—Managerial Accounting (3)  
Acct 3501—Intermediate Accounting I (4)  
Acct 3507—Cost Accounting I (4)  
BOEE 3265—Methods of Teaching Bookkeeping (1)  
Minimum electives in upper division accounting courses (8)

**Total for Minor (45)**

## **BUSINESS ADMINISTRATION (BA)**

*Faculty*—Dwayne R. Tallent, Ph.D., Assistant Professor and Head, John W. Boyer, Jr., Ph.D., Associate Professor; Theodore M. Breu, Ph.D., Associate Professor; Robert S. Hancock, Ph.D., Dean and Professor; Donald W. Ireland, Ph.D., J.D., Associate Professor; Hyung K. Kim, Ph.D., Professor; John W. Newstrom, Ph.D., Associate Professor; Henry B. Person, Ph.D., Assistant Professor; Jon L. Pierce, M.S., Assistant Professor; Richard O. Sielaff, Ph.D., Professor

The Department of Business Administration offers a professionally oriented program consisting of a foundation in analytical skills, management fundamentals, and business functions supported by a broad general and liberal education curriculum. Students may pursue a general business administration program or choose electives that lead to an area of concentration in finance, industrial relations, management, and marketing.

The curriculum provides for a broad preparation in the functional areas while developing the analytical, problem-solving and decision-making skills necessary for a variety of management careers in business, government, and nonprofit institutions. The department recognizes its responsibility to offer students an educational foundation that will equip them with the fundamentals for entry-level positions and provide them with a broad base for continuing their professional growth and development.

## **BACHELOR OF BUSINESS ADMINISTRATION DEGREE PROGRAM (B.B.A.)**

This professionally oriented degree program emphasizes the competencies required for management careers in business, government, public, or social service organizations. The program is designed to provide students with a breadth and depth of knowledge of management fundamentals, techniques, processes, and skills, which when combined with a foundation in the functional areas of accounting, business law, finance, quantitative analysis, marketing and personnel administration, will prepare them for a career with management responsibility.

About one-half of the courses required for the B.B.A. program are taught in other academic disciplines. Emphasis is placed on the development of a strong liberal arts education that provides a foundation for the professional course offerings.

The core curriculum of the program focuses on the fundamental administrative and functional skills demanded of leaders in modern public and private organizations. The program permits sufficient latitude in choice of electives so that students can develop a course structure to fit their particular professional objectives in finance, industrial relations, management, marketing, or general business.

A management internship program is available that provides an opportunity to apply classroom training during the course of a professional experience as a responsible employee in a public agency, private business, or other organization. Internships occupy the student on a full-time basis for 1 quarter. In addition to professional training and remuneration, the internship provides a practical test of vocational interests, an opportunity for immediate application of academic knowledge and development of responsible work habits, and the prospect of a more rapid assumption of professional leadership upon graduation.

Through the management field studies program students also have an opportunity to examine entrepreneurial opportunities and issues by applying their managerial and functional skills to the identification, analysis, and solution of both recurring and nonrecurring problems confronting small businesses. This management counseling and assistance program is made available through the Small Business Institute sponsored by the United States Small Business Administration.

### **I. LOWER DIVISION—PREBUSINESS REQUIREMENTS**

- A. Freshman Composition—8 credits
  - Engl 1106—Freshman Composition (4)
  - Engl 1107—Freshman Composition (4)
  - (or) credit by examination in Freshman Composition
- B. Communication, Language, Symbolic Systems—11 credits
  - 1. Speech—3 credits
    - Spch 1101—Rhetoric of Our Times
    - (or) Spch 1104—Business Speech (3)
  - 2. Mathematics—8 credits
    - Math 1156—Finite Mathematics (4)
    - Math 1160—Calculus, A Short Course (4)



Students who have completed 1 year of high school algebra and 1 year of high school geometry are advised to begin with Math 1156. A remedial course, Math 1110, is required of those students who have completed 1 year or less of high school algebra. Students interested in mathematics beyond elementary calculus may substitute Math 1296, Math 1297, and Math 3320 for Math 1156 and Math 1160.

C. Electives in the Physical and Biological Sciences—9 credits

D. Man and Society—18 credits

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Psy 1003—General Psychology (5)

Soc 1100—Problems of American Society (5)

E. Electives in Artistic Expression—9 credits

F. Additional Prebusiness Requirements—20 credits

Acct 1511—Financial Accounting I (3)

Acct 1512—Financial Accounting II (3)

Acct 1513—Managerial Accounting (3)

Econ 1203—Statistical Methods (4)

Econ 1204—Quantitative Research Methods (4)

Math 1501—FORTRAN Programming (3)

A student with no previous study in keypunching, unit record principles, and computer data processing is encouraged to enroll in BOEE 1204 before enrolling in Math 1501. Math 1501 and Math 1156 may be taken concurrently. Math 1501 and Math 1110 may be taken concurrently if the student has completed 1 year of high school algebra.

G. Additional lower division liberal education electives to meet the minimum requirement of 90 credits.

### **Total Lower Division—Prebusiness Requirements (90)**

## **II. UPPER DIVISION REQUIREMENTS**

A. Required Business Core Courses (31)

BA 3104—The Functions of Law

(or) BA 3105—Business Law (4)

BA 3204—Quantitative Methods I (5)

BA 3241—Systems Analysis I (3)

BA 3301—Production Management (3)

BA 3304—Fundamentals of Management (3)

BA 3362—Business Policy (4)

BA 3601—Corporation Finance (3)

BA 3701—Principles of Marketing (3)

BA 3804—Personnel Administration (3)

B. Required Supporting Courses (22)

Econ 3111—Microeconomic Analysis (5)

Econ 3112—Macroeconomic Analysis (5)

Upper division electives in psychology, sociology, economics, history, geography, political science, or anthropology (12)

C. Required Upper Division Courses (28)

Select general business administration program or a field of concentration

D. Any additional courses to meet the minimum requirement of 182 credits

### **Total Minimum Credits—Bachelor of Business Administration Degree (182)**

## **GENERAL BUSINESS ADMINISTRATION PROGRAM**

The general business administration program is designed for students who prefer a broad preparation for a variety of careers in business, government, public, or social service organizations.

### **REQUIRED UPPER DIVISION COURSES—28 credits**

1. Upper division business administration (BA) electives (18).
2. Additional upper division courses in any department, college, or school, with a maximum of two courses in any one department. All internship programs must be approved by the department prior to registration. (10)

## **FIELD OF CONCENTRATION**

The field of concentration is designed for students who prefer to specialize their studies in preparation for a career in a specific area of administration. A student who selects a field of concentration must complete the requirements identified below.

### **REQUIRED UPPER DIVISION COURSES—28 credits**

1. Minimum of four courses in a field of concentration.
2. Additional upper division business administration (BA) courses to meet the minimum of 18 credits including those credits in the field of concentration.
3. Additional upper division courses in any department, college, or school, with a maximum of two courses in any one department. All internships must be approved by the department prior to registration. (10)

The student must select a minimum of four courses from one of the following fields of concentration (finance, industrial relations, marketing, or management):

#### **Finance**

Acct 3501—Intermediate Accounting I (4)  
Acct 3544—Income Tax Accounting (4)  
BA 3644—Investment Fundamentals (4)  
BA 3647—Financial Markets and Institutions (4)  
BA 3648—International Finance (4)  
Econ 3704—Money and Banking (4)

#### **Industrial Relations**

BA 3330—Organization Theory and Analysis (4)  
BA 3802—Organization Behavior (3)  
BA 3807—Wage and Employment Analysis (4)  
BA 3821—Human Relations in Administration (4)  
BA 3842—Labor Relations (4)  
BA 3901—Fundamentals of Management Research (2)  
BA 5841—Collective Bargaining: Public and Private Sector (3)  
BA 5851—Training and Organization Development (3)  
Psy 3701—Psychology in Personnel Work (3)  
(or) Psy 3704—Industrial and Business Psychology (3)

#### **Marketing**

BA 3330—Organization Theory and Analysis (4)  
BA 3355—Small Business Management (3)  
BA 3724—International Business (4)

BA 3741—Sales Management (4)  
BA 5751—Advertising Management (3)  
BA 5761—Marketing Strategy (3)  
Econ 5351—Regional Economics, Location Theory (5)

### **Management**

BA 3205—Quantitative Methods II (4)  
BA 3211—Management Information Systems (4)  
BA 3242—Systems Analysis II (3)  
BA 3330—Organization Theory and Analysis (4)  
BA 3355—Small Business Management (3)  
BA 3802—Organization Behavior (3)  
BA 3901—Fundamentals of Management Research (2)  
BA 3980—Seminar: Topics in Business (4)  
BA 5364—Management Issues and Concepts (3)

## **MINOR IN BUSINESS ADMINISTRATION FOR THE B.A. DEGREE (CLS)**

The minor in business administration provides supplemental administrative training for liberal arts majors seeking a variety of careers in business, government, public, or social service organizations.

### **LOWER DIVISION PROGRAM**

#### **Required Courses (9)**

Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting II (3)  
Acct 1513—Managerial Accounting (3)

#### **Required Supporting Courses (23)**

Econ 1004-1005—Principles of Economics: Micro and Macro (8)  
Econ 1203—Statistical Methods (4)  
Math 1156—Finite Mathematics (4)  
Math 1160—Calculus, A Short Course (4)  
Math 1501—FORTRAN Programming (3)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (21)**

BA 3301—Production Management (3)  
BA 3304—Fundamentals of Management (3)  
BA 3601—Corporation Finance (3)  
BA 3701—Principles of Marketing (3)  
BA 3804—Personnel Administration (3)  
Electives in upper division business administration courses (6)

**Total for Minor (53)**

## **BUSINESS, OFFICE AND ECONOMIC EDUCATION (BOEE)**

*Faculty*—Dennis L. Nelson, Ph.D., Associate Professor and Head; Thomas B. Duff, Ph.D., Assistant Professor; Marianne E. Frye, Ph.D., Assistant Professor; Mildred J. Zollar, M.A., Instructor



## *School of Business and Economics*

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The curricular offerings of the Department of Business, Office and Economic Education are designed to provide a broad and sound educational background and training in business and economics in preparation for teaching and career work in business. Use of modern theories, materials, and equipment provides a relevant and up-to-date educational experience.

Three options (comprehensive, accounting, and secretarial) are available to business, office and economic education students. Preparation as a certified vocational business teacher is also offered. The associate in arts degree program in secretarial sciences provides training for employment and career development with 2 years of training.

Courses are available to the student on an individualized instructional basis. Recognition of high achievement in business education may be earned through participation in the National Office Education Association awards system.

### **MAJOR IN BUSINESS, OFFICE AND ECONOMIC EDUCATION— ACCOUNTING FOR THE B.A.S. DEGREE (CE)**

This major is designed to prepare teachers in bookkeeping and data processing for secondary schools.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (15)**

Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting II (3)  
Acct 1513—Managerial Accounting (3)  
BOEE 1201—Calculating Equipment (1)  
BOEE 1204—Introduction to Data Processing (3)  
EdSe 1201—Phase I: Orientation to Teaching (2)

##### **Required Supporting Courses (31-32)**

BOEE 1040—Typewriting Techniques (2)  
BOEE 1041—Production Typewriting I (2)  
BOEE 1042—Production Typewriting II (2)  
Hlth 1101—Personal Health (2)  
Math 1110—College Algebra (5)  
(or) Econ 1203—Statistical Methods (4)  
Psy 1003—General Psychology (5)  
Spch 1111—Beginning Public Speaking  
(or) Spch 1104—Business Speech (3)  
Eight credits from among the following three courses:

Econ 1002—Introduction to Economics (4)  
Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)

Additional credits in physical education courses (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (64-66)**

Acct 3501—Intermediate Accounting I (4)  
Acct 3507—Cost Accounting I (4)  
Acct 3544—Income Tax Accounting (4)  
BOEE 3004—Business and Economic Education (2)  
BOEE 3104—Business Communications (3)  
BOEE 3263—Methods of Teaching Typewriting (1)  
BOEE 3265—Methods of Teaching Bookkeeping (1)

Ind 5928—Philosophy and Practices of Vocational Education (3)

EdSe 3101—Phase II: Learning Theory Applications

EdSe 3202—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

Electives in upper division accounting courses (7-8)

Electives in upper division business administration, economics, and/or business, office and economic education courses (6-7)

**Required Supporting Courses (15)**

BA 3104—The Functions of Law

(or) BA 3105—Business Law (4)

BA 3304—Fundamentals of Management (3)

BA 3701—Principles of Marketing (3)

BA 3804—Personnel Administration (3)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total Minimum Credits for Major (125)**

## **MAJOR IN BUSINESS, OFFICE AND ECONOMIC EDUCATION— COMPREHENSIVE FOR THE B.A.S. DEGREE (CE)**

This major is designed to prepare teachers in business, office and economic education for secondary schools.

### **LOWER DIVISION PROGRAM**

**Required Major Courses (27)**

BOEE 1040—Typewriting Techniques (2)

BOEE 1041—Production Typewriting I (2)

BOEE 1042—Production Typewriting II (2)

BOEE 1043—Production Typewriting III (2)

BOEE 1046—Beginning Shorthand (3)

BOEE 1047—Intermediate Shorthand (3)

BOEE 1048—Advanced Shorthand (3)

BOEE 1200—Graphics (2)

BOEE 1201—Calculating Equipment (1)

BOEE 1203—Records Management (2)

BOEE 1204—Introduction to Data Processing (3)

EdSe 1201—Phase I: Orientation to Teaching (2)

**Required Supporting Courses (30)**

Acct 1511—Financial Accounting I (3)

Acct 1512—Financial Accounting II (3)

Acct 1513—Managerial Accounting (3)

Hlth 1101—Personal Health (2)

Psy 1003—General Psychology (5)

Spch 1111—Beginning Public Speaking (3)

(or) Spch 1104—Business Speech (3)

Eight credits from among the following three courses:

Econ 1002—Introduction to Economics (4)

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Additional credits in physical education courses (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (52)**

BOEE 3004—Business and Economic Education (2)  
BOEE 3005—Office Transcription (4)  
BOEE 3006—Office and Secretarial Procedures (2)  
BOEE 3007—Office Management (4)  
BOEE 3104—Business Communications (3)  
BOEE 3263—Methods of Teaching Typewriting (1)  
BOEE 3265—Methods of Teaching Bookkeeping (1)  
BOEE 3267—Methods of Teaching Shorthand (1)  
EdSe 3101—Phase II: Learning Theory Applications (7)  
EdSe 3202—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Ind 3601—Offset Reprographics (2)  
Ind 5928—Philosophy and Practices of Vocational Education (3)

### **Required Supporting Courses (27)**

BA 3104—The Functions of Law  
(or) BA 3105—Business Law (4)  
BA 3304—Fundamentals of Management (3)  
BA 3701—Principles of Marketing (3)  
BA 3804—Personnel Administration (3)  
Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)  
Electives in upper division accounting, business administration, economics and/or  
business, office and economic education courses (12)

**Total for Major (136)**

## **MAJOR IN BUSINESS, OFFICE AND ECONOMIC EDUCATION —SECRETARIAL FOR THE B.A.S. DEGREE (CE)**

This major is designed to prepare teachers in secretarial and clerical subjects for secondary schools.

## **LOWER DIVISION PROGRAM**

### **Required Major Courses (27)**

BOEE 1040—Typewriting Techniques (2)  
BOEE 1041—Production Typewriting I (2)  
BOEE 1042—Production Typewriting II (2)  
BOEE 1043—Production Typewriting III (2)  
BOEE 1046—Beginning Shorthand (3)  
BOEE 1047—Intermediate Shorthand (3)  
BOEE 1048—Advanced Shorthand (3)  
BOEE 1200—Graphics (2)  
BOEE 1201—Calculating Equipment (1)  
BOEE 1203—Records Management (2)  
BOEE 1204—Introduction to Data Processing (3)  
EdSe 1201—Phase I: Orientation to Teaching (2)

### **Required Supporting Courses (24)**

Acct 1511—Financial Accounting I (3)  
Hlth 1101—Personal Health (2)



Psy 1003—General Psychology (5)  
Spch 1111—Beginning Public Speaking  
(or) Spch 1104—Business Speech (3)  
Eight credits from among the following three courses:  
    Econ 1002—Introduction to Economics (4)  
    Econ 1004—Principles of Economics: Micro (4)  
    Econ 1005—Principles of Economics: Macro (4)  
Additional credits in physical education courses (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (49)**

BOEE 3004—Business and Economic Education (2)  
BOEE 3005—Office Transcription (4)  
BOEE 3006—Office and Secretarial Procedures (4)  
BOEE 3104—Business Communications (3)  
BOEE 3263—Methods of Teaching Typewriting (1)  
BOEE 3267—Methods of Teaching Shorthand (1)  
EdSe 3101—Phase II: Learning Theory Applications (7)  
EdSe 3202—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Ind 3601—Offset Reprographics (2)  
Ind 5928—Philosophy and Practices of Vocational Education (3)

### **Required Supporting Courses (27)**

BA 3104—The Functions of Law  
(or) BA 3105—Business Law (4)  
BA 3304—Fundamentals of Management (3)  
BA 3701—Principles of Marketing (3)  
BA 3804—Personnel Administration (3)  
Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)  
Electives in upper division business administration, economics and/or business,  
    office and economic education courses (12)

**Total for Major (127)**

## **MAJOR IN SECRETARIAL SCIENCES FOR THE A.A. DEGREE (CLS)**

This major is designed to prepare the student for a vocation in the secretarial and clerical field.

## **LOWER DIVISION PROGRAM**

### **Required Courses (87)**

Liberal education credits (56)  
Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting II (3)  
BOEE 1040—Typewriting Techniques (2)  
BOEE 1041—Production Typewriting I (2)  
BOEE 1042—Production Typewriting II (2)  
BOEE 1043—Production Typewriting III (2)

BOEE 1046—Beginning Shorthand  
(or) BOEE 1056—Beginning Forkner Shorthand (3)  
BOEE 1047—Intermediate Shorthand  
(or) BOEE 1057—Intermediate Forkner Shorthand (3)  
BOEE 1048—Advanced Shorthand  
(or) BOEE 1058—Advanced Forkner Shorthand (3)  
BOEE 1200—Graphics (2)  
BOEE 1201—Calculating Equipment (1)  
BOEE 1203—Records Management (2)  
BOEE 1204—Introduction to Data Processing (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Courses (9)**

BOEE 3005—Office Transcription (4)  
BOEE 3104—Business Communications (3)  
Ind 3601—Offset Reprographics (2)

**Total for Degree (96)**

## **ECONOMICS (Econ)**

*Faculty*—Wayne A. Jesswein, Ph.D., Associate Professor and Head; Richard W. Lichty, Ph.D., Associate Professor; Cecil H. Meyers, Ph.D., Professor; Dennis L. Nelson, Ph.D., Associate Professor; Jerrold M. Peterson, Ph.D., Associate Professor; Raymond L. Raab, Ph.D., Assistant Professor; Donald N. Steinnes, Ph.D., Associate Professor; David A. Vose, Ph.D., Associate Professor

The objective of the Department of Economics is to provide a quality educational base for students interested in pursuing either employment opportunities or graduate training after earning a degree from UMD. The curriculum combines the classical, philosophic approach toward the study of the discipline with the modern quantitative approach.

The following courses are the required core for all majors and minors in economics:

#### **REQUIRED ECONOMIC CORE**

##### **LOWER DIVISION PROGRAM (12)**

Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)  
Econ 1203—Statistical Methods (4)

##### **UPPER DIVISION PROGRAM (10)**

Econ 3111—Microeconomic Analysis (5)  
Econ 3112—Macroeconomic Analysis (5)

##### **REQUIRED SUPPORTING COURSES (17)**

Acct 1511—Financial Accounting I (3)  
Acct 1512—Financial Accounting II (3)  
Math 1156—Finite Mathematics (4)  
Math 1160—Calculus, A Short Course (4)  
Math 1501—FORTRAN Programming (3)

Students who have completed 1 year each of high school algebra and geometry

are advised to begin with Math 1501 or Math 1156. Math 1501 and Math 1156 may be taken concurrently. A remedial course, Math 1110, is required for students who have completed 1 year or less of high school algebra. Math 1501 and Math 1110 may be taken concurrently if the student has completed 1 year of high school algebra.

## **MAJOR IN ECONOMICS FOR THE B.A. DEGREE (CLS)**

The primary purpose of the major in economics for the B.A. degree is to provide a broad-based study of the discipline of economics for students interested in the liberal education aspect of the field or in pursuing graduate training upon completion of the program.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (12)**

Required core (12)

#### **Required Supporting Courses (17)**

Required core (17)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (33)**

Required core (10)

Econ 3059—Seminar (2)

Electives in economics courses to include at least two of the following areas of concentration (21):

- Area 1. Econ 5622—Industrial Organization (4)  
Econ 5652—Government Regulation of Business (4)
- Area 2. Econ 3704—Money and Banking (4)  
Econ 5752—Monetary Economics (4)
- Area 3. Econ 5361—Regional Economics, Location Theory (5)  
Econ 5362—Urban Economics (4)
- Area 4. Econ 3101—Quantitative Economics I (4)  
Econ 5222—Quantitative Economics II (4)
- Area 5. Econ 3011—History of Economic Thought (4)  
Econ 5052—Issues in Economic Thought (4)
- Area 6. By petition, the student may request an area other than those stated. The area must include one regular course and an independent study or related course in another department totaling 8 credits

**Total for Major (62)**

## **MINOR IN ECONOMICS FOR THE B.A. DEGREE (CLS)**

The primary purpose of the minor in economics for the B.A. degree is to provide a basic overview of the discipline of economics for students who have a major interest in a complementary discipline.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (12)**

Required core (12)



**Required Supporting Courses (17)**

Required core (17)

**UPPER DIVISION PROGRAM**

**Required Minor Courses (18)**

Required core (10)

Electives in economics courses to include one of the areas of concentration as listed under the major in economics for the B.A. degree (8)

**Total for Minor (47)**

**MAJOR IN ECONOMICS FOR THE B.S. DEGREE (CLS)**

The primary purpose of the major in economics for the B.S. degree is to provide a broad-based study of the discipline of economics for students interested in pursuing employment in either private or public business organizations upon completion of the program.

**LOWER DIVISION PROGRAM**

**Required Major Courses (16)**

Required core (12)

Econ 1204—Quantitative Research Methods (4)

**Required Supporting Courses (24)**

Required core (17)

Acct 1513—Managerial Accounting (3)

Pol 1011—American Government and Politics (4)

**UPPER DIVISION PROGRAM**

**Required Major Courses (44)**

Required core (10)

Econ 3060—Senior Research Project (4)

Econ 5333—Tools and Application of Economic Analysis I (4)

Econ 5334—Tools and Application of Economic Analysis II (4)

Electives in economics or other department courses that have been approved by the student's adviser (22)

**Required Supporting Courses (20)**

BA 3301—Production Management (3)

BA 3304—Fundamentals of Management (3)

BA 3601—Corporation Finance (3)

BA 3701—Principles of Marketing (3)

BA 3804—Personnel Administration (3)

Pol 3220—Introduction to Public Administration (5)

**Total for Major (104)**

## **IV. COLLEGE OF EDUCATION (CE)**

Dean: Allen Myers  
125 Bohannon Hall, 726-7131

The major purpose of the College of Education is to provide preparation for technical and human service careers in education, industry, and community agencies, and to respond to the needs for personal and professional development of students, faculty, staff, and persons in the community at large. The college dedicates itself to the goals of quality teaching, service, and research.

To accomplish these objectives, the College of Education is oriented to the changing needs of society and attempts to create programs that respond to these needs.

The college endorses the concept of a liberal education and follows the stated purposes of the University of Minnesota, Duluth.

### **ADMISSION**

In addition to the freshman or lower division admission process described in the General Information section of this bulletin, students majoring in departments in the College of Education must apply for admission to the upper division. This admission is contingent upon submission of evidence that the student has completed necessary prerequisite courses, achieved a satisfactory grade point average, made appropriate plans for the rest of the academic program, and participated in a personal interview to review these matters. Standards are set by the individual departments, and students should consult their adviser or departmental office for information.

It is recommended that a student file application forms for upper division during the quarter in which 84 credits are completed. To avoid delay in graduation due to faulty planning, and because class sections, offerings, and faculty size are determined in part on the basis of information from the upper division applicants, it is imperative that these forms be filed no later than during the quarter in which 105 credits are completed.

### **ACADEMIC STANDING AND PROGRESS, STUDENT APPEALS**

Because the operational and governing structure of the College of Education evolves, standards and policies affecting the academic standing of students are constantly being developed. Students who have questions or grievances concerning their academic standing are encouraged to request information about the current policies and opportunities for appeal in the office of the dean of the College of Education.

### **DEGREE PROGRAMS**

#### **Bachelor of Applied Arts Degree (B.A.A.)**

The major purpose of this degree program is to prepare teachers in elementary and secondary education and offer the nonteaching fields of home economics and physical education.

### MAJORS FOR THE B.A.A. DEGREE

Art Education (SFA)	Teaching Spanish (CLS)
Home Economics	Teaching Speech-
Music Education (SFA)	Communication (CLS)
Physical Education	Teaching Speech-
Teaching English (CLS)	Communication/Theatre
Teaching French (CLS)	(SFA and CLS)
Teaching German (CLS)	Theatre Education (SFA)
Teaching Social Studies (CLS) <sup>1</sup>	

### MINORS FOR THE B.A.A. DEGREE

Dance	Teaching English (CLS)
Home Economics	Teaching French (CLS)
Humanities (CLS)	Teaching German (CLS)
Physical Education	Teaching Music (Secondary) (SFA)
Recreation	Teaching Spanish (CLS)
Teaching Art (Secondary) (SFA)	Teaching Speech-
Teaching Communications (CLS)	Communication (CLS)

## Bachelor of Applied Science Degree (B.A.S.)

The major purpose of this degree program is to prepare teachers in elementary and secondary education and offer the nonteaching fields of communicative disorders and industrial technology.

### MAJORS FOR THE B.A.S. DEGREE

Business, Office and Economic Education—Accounting (SBE)	Industrial Education— Comprehensive
Business, Office and Economic Education—Comprehensive (SBE)	Industrial Technology
Business, Office and Economic Education—Secretarial (SBE)	Kindergarten-Elementary Education
Communicative Disorders	Physical Education
Early Child Care and Development	Teaching Broad Area Science, Middle School-Jr. High (CLS) <sup>1</sup>
Elementary Education	Teaching Earth Science (CLS)
Health Education	Teaching Life Science (CLS) <sup>1</sup>
Home Economics Education	Teaching Mathematics (CLS)
Industrial Education	Teaching Physical Science (CLS) <sup>1</sup>
	Vocational-Technical Education— Comprehensive

### MINORS FOR THE B.A.S. DEGREE

Accounting (SBE)	Dance
Art (Elementary) (SFA)	English (Elementary) (CLS)

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<sup>1</sup> Subject to approval by the Board of Regents.



Health Education  
Home Economics  
Industrial Technology  
Music (Elementary) (SFA)  
Physical Education  
Recreation  
Social Science (Elementary) (CLS)  
Teaching Art (Secondary) (SFA)

Teaching Chemistry (CLS)  
Teaching Earth Science (CLS)<sup>1</sup>  
Teaching English (CLS)  
Teaching Life Science (CLS)  
Teaching Mathematics (CLS)  
Teaching Physics (CLS)

## **REQUIREMENTS FOR THE BACHELOR OF APPLIED ARTS AND THE BACHELOR OF APPLIED SCIENCE DEGREES**

1. Completion of at least 56 credits in liberal education as prescribed by the UMD Council on Liberal Education.
2. Completion of one or more majors with a minimum 2.00 GPA in each. Majors in the College of Education must be accepted and the major program approved by the department(s) offering the major.
3. A minimum 2.00 GPA in all work attempted in residence at UMD and in the college, and a 2.00 GPA overall, including credits transferred from outside UMD.
4. If a student elects to complete a certifiable minor for either of these two degrees, it must be in connection with a certifiable major for either of the degrees.
5. Completion of elective courses to total a minimum of *180 credits*. The credit requirement for each major program will be specified individually. Approved electives and required supporting courses are described for each major.
6. Compliance with all general requirements governing the granting of degrees at UMD. Students should check on their degree status before the end of the junior year in the office of the dean.
7. A minimum of 45 credits earned while in residence in the College of Education. Thirty of the last 45 credits of the degree requirements must be earned in residence in the college.

## **REQUIREMENTS FOR THE ASSOCIATE IN VOCATIONAL TEACHER EDUCATION DEGREE**

1. Acceptance into the program by the Department of Industrial and Technical Studies.
2. Completion of the required and elective courses to total a minimum of 96 credits.
3. Completion of a minimum of 30 credits of course work in residence. Extension courses count as residence credit; correspondence courses do not.
4. Maintenance of a minimum 2.00 GPA in all work attempted in residence.

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<sup>1</sup>Subject to approval by the Board of Regents.

5. Completion of the industrial work experience requirement necessary for Minnesota vocational teacher licensure in a teaching specialization area.

6. Compliance with all general regulations governing the granting of degrees at UMD.

## Master of Education Degree Program (M.Ed.)

*Director*—A. Dean Hendrickson  
240 Bohannon Hall, 726-8135

**General Information**—The master of education is a professional graduate degree awarded by the College of Education of the University of Minnesota, Duluth. The degree program is designed to provide an opportunity for teachers to improve their professional competencies. Each student's program is individually tailored to meet identified needs and interests as an elementary, secondary, community college, or vocational-technical school teacher.

**Admission**—Applicants must be licensed to teach in schools, K-14. They must have had 1 year's teaching experience or be in their first year of teaching. Admission is based on a combination of achievement on the Miller Analogies Test (MAT), the undergraduate scholastic record, and evaluations by supervisors and colleagues.

**Application**—Applications for admission may be obtained by writing to the Director, M.Ed. Program, 240 Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812. Applications submitted must be complete in every detail—two official transcripts of all college work, the completed application form, the credentials examination fee (if required), test results, returned evaluation forms—before an admission decision will be made. Completed application materials should be mailed to the Office of Admissions, 123 Administration Building, University of Minnesota, Duluth, Minnesota 55812. Since school personnel who will complete evaluations are difficult to contact between June 15 and September 1, students are encouraged to apply before May. With normal delays in receiving transcripts and evaluations, students should expect the admission process to take at least 4 weeks, and longer if there is delay in submitting the MAT score.

**Credentials Examination Fee**—A credentials examination fee of \$15 is required of each applicant who has not previously been admitted to a college of the University of Minnesota, including UMD. Applicants previously registered only in Continuing Education and Extension or as summer-only students must pay this fee. Previously admitted students must pay a fee of \$5. Checks for the fee should be made payable to the University of Minnesota.

**Miller Analogies Test**—The MAT may be taken at UMD for a fee of \$5. Contact the Psychometrist, 255 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

**Registration**—Because the M.Ed. program is designed for in-service teachers, formal course work will likely be completed in late hour classes at UMD, in Continuing Education and Extension classes both on and off campus, and in summer session classes.

**Fees**—Fees are computed on a per credit basis up to 11 credits, and a set fee is established for 12 credits or more. Students who register for 6 or more credits must

pay the student service fee. See section I of this bulletin for the current fee schedule. For further information about registration or fees, contact the director of the program.

**Degree Program**—A program is planned with the student's goals, needs, and interests in mind. An advisement committee is named on the basis of a study of the transcript, the supervisor's and colleagues' evaluations, and analysis of the teaching role of the candidate. This committee may suggest work in some areas not mentioned in the goal statement. A program must contain a minimum of 45 graduate credits.

Only courses at the 5000 and 8000 levels are graduate-level courses. Some students may have to complete some 1000- or 3000-level courses to meet prerequisites for some of the graduate-level courses. In some instances, courses at the 3000 level are the only opportunity for a particular learning experience. These may be included in the degree program by making a request of the instructor to modify the requirements to make a 5000-level course equivalent.

Students who wish to earn a second major or upgrade a minor to a major cannot do this in the M.Ed. program unless a satisfactory program for this purpose can be developed using graduate offerings and meeting graduate standards.

Students may have the notation "(with concentration in\_\_\_\_\_)" placed on their diplomas and transcripts. A concentration requires a minimum of 15 graduate credits in an area; e.g., industrial education and technology, physical education, geology, educational administration, special education. Courses with the Educ prefix cannot be used to qualify for a concentration.

**Transfer Credits**—A maximum of 12 quarter credits may be transferred to a degree program from an accredited graduate institution. There is no limit on the amount of credits that may be earned in Continuing Education and Extension. All credits used in an M.Ed. program—from Continuing Education and Extension, other institutions, and UMD—are incorporated into the single M.Ed. transcript with a notation of their origin.

**Financial Aids**—Through special arrangement with the Graduate School, UMD has been able to provide graduate assistantships to qualified full-time M.Ed. students. These are normally granted through individual departments. Information can be obtained from the head of the department concerned.

For information regarding loan funds, living accommodations, and similar concerns, see the General Information section of this bulletin.

**Graduate School**—Teachers may also earn the M.A. degree from the Graduate School at UMD. For some teachers, these programs may be more appropriate. Majors are available in education, English, history, and art education. The M.A. in educational psychology is designed for counselor certification. Additional programs are available in educational administration. For more information, see the Graduate School section of this bulletin.

## **CERTIFICATION PROGRAMS**

The College of Education offers a variety of certification programs approved by the Minnesota Board of Teaching. Completion of any one or more of these leads to a recommendation that an appropriate license be issued. Included among the certifi-



cation programs are: elementary and secondary teaching (see the following licensure requirements); health, recreation, coaching (see Physical Education); driver education (see Secondary Education); elementary and secondary counseling; educational administration; nursery school; special education; reading; and vocational teaching (see Industrial and Technical Studies). Refer to the alphabetical listings within this college.

## Elementary and Secondary Teacher Licensure

A candidate for a teaching license must fulfill all requirements for a B.A.S. or B.A.A. degree from the College of Education. The major must be associated with a program approved by the State Board of Teaching. For secondary teaching, approved programs are the "teaching \_\_\_\_\_" and "\_\_\_\_\_ education" majors; e.g., teaching English and music education. The approved programs for elementary teaching are associated with majors in elementary education and kindergarten-elementary education. Approved programs in art education, music education, and physical education lead to licensure for teaching grades K-12.

Forms to apply for licensure may be obtained from the UMD placement office or from the office of the dean of the College of Education. Completed forms and the required fee must be submitted to the office of the dean for checking by the certification officer and subsequent transmittal to the State Department of Education.

Students desiring to teach in secondary schools in the areas of social studies and science should carefully select a major that will lead to licensure. Some majors and minors lead to licensure only until July 1, 1979, and some lead to licensure after that date. Information about which major or minor to pursue can be obtained from the Department of Secondary Education.

The Minnesota State Department of Education and Board of Teaching regulations require that an applicant for a teaching license be physically competent to teach. This regulation is met by successfully passing a physical examination during one of the last 2 quarters in residence, and no later than 4 weeks prior to application for a teaching license. Students can make arrangements to take this examination at the University Health Service, or they can be examined by their personal physician.

Although the teacher-preparation program at UMD serves to fulfill licensure requirements for many states other than Minnesota, there is an increasing number of states that are demanding that highly specialized requirements be met. Students who know in advance that they will be seeking employment in another state should inquire early about such requirements at the placement office.

Candidates for licensure should realize that, although completion of one or more minors may enhance the opportunity for initial employment, there are restrictions on their use. Elementary candidates should consult with the head of that department and secondary candidates with the head of that department for current special requirements for teaching minors.

For course descriptions see Education, Elementary Education, and Secondary Education.

## COACHING CERTIFICATION (CC)

(Department of Health and Physical Education and Recreation)

This program meets present Minnesota licensure requirements as well as pending new requirements being considered by the Board of Teaching to coach boys' and girls' interscholastic sports.

## Plan I—For Students Completing the Undergraduate Degree

### LOWER DIVISION PROGRAM

#### Required Certification Courses (5)

Elective credit from PE 1800 to PE 1899 (1)

EdSe 1201—Phase I: Orientation to Teaching<sup>1</sup> (2)

Hlth 1600—Standard First Aid (2)

#### Required Supporting Courses (10)

Biol 1042—Human Physiology (5)

Psy 1003—General Psychology (5)

### UPPER DIVISION PROGRAM

#### Required Certification Courses (42-56)

CC 3116—Applied Sports Science (4)

CC 3160—Psychological Aspects of Coaching (2)

CC 3161—Administrative Aspects of Coaching (2)

CC 3180—Practicum in Coaching (3)<sup>2</sup>

Elective credits from CC 3171, 3172, 3175, 3176, 3177, 3178, 3179, 3270, 3271, 3272 (6)

PE 3115—Physiological Application to Sports (3)

PE 3118—Human Biomechanics (4)

EdSe 3101—Phase II: Learning Theory Applications (7)<sup>1</sup>

EdSe 3202—Phase III: Human Relations (4)<sup>1</sup>

EdSe 3301—Phase IV: Student Teaching (3-17)<sup>1</sup>

Edse 3401—Phase V: The Teaching Profession (4)<sup>1</sup>

**Total for Certification (57-71)**

## Plan II—For Students With the Baccalaureate Degree and Valid Minnesota Teaching License

### LOWER DIVISION PROGRAM

#### Required Certification Courses (1)

Elective credit from PE 1800 to PE 1899 (1)

### UPPER DIVISION PROGRAM

#### Required Certification Courses (25)

CC 3180—Practicum in Coaching (3)<sup>2</sup>

PE 5111—Administration of Interschool Athletics (3)

PE 5120—Advanced Human Biomechanics (3)

PE 5122—Applied Physiology (3)

PE 5136—Psychology of Coaching (3)

PE 5170—Principles of Physical Education (3)

PE 5620—Prevention, Care of Athletic Injuries (3)

Elective credits from CC 3171, 3172, 3175, 3176, 3177, 3178, 3179, 3270, 3271, 3272 (4)

**Total for Certification (26)**

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<sup>1</sup>Elementary education majors may substitute an elementary education professional teaching sequence.

<sup>2</sup>Must include an interscholastic coaching experience.

## COMMUNICATIVE DISORDERS (CD)

*Faculty*—Ash M. Hawk, Ph.D., Associate Professor and Head; John T. Hatten, Ph.D., Professor; Robert F. Pierce, Ph.D., Professor; Joan E. Larsen, M.S., Instructor

The Department of Communicative Disorders offers an undergraduate major program designed to prepare students for admission to a master's (professional) degree program or for work as an aid to professional speech/language clinicians in such settings as day activity centers for children with disabilities, day care centers, mental health and human development centers providing outreach services as well as in-clinic speech/language management of preschool children and their parents, or nursery schools. The bachelor's degree program includes the study of phonetics; anatomy and physiology of the speech and hearing mechanisms; the normal development of speech and language; and the nature of disorders of speech, hearing, and language, and their management. The student seeking admission to this curriculum must present an overall GPA of 2.80 in lower division work.

See the section on the Graduate School for the master of arts degree program in communicative disorders.

## MAJOR IN COMMUNICATIVE DISORDERS FOR THE B.A.S. DEGREE

This major offers training in the fundamentals of human communication and communicative disorders.

### LOWER DIVISION PROGRAM

#### **Required Major Courses** (4)

CD 1990—Introduction to Phonetics (4)

#### **Required Supporting Courses** (39)

Biol 1012—Human Anatomy (5)

Biol 1042—Human Physiology (5)

Biol 1102—Biology and Man (5)

Engl 1811—Introduction to Language (4)

Hlth 1101—Personal Health (2)

PE electives (3)

Physics 1001—Elementary Physics (4)

Psy 1003—General Psychology (5)

Spch 1101—Rhetoric of Our Times (3)

Spch 1111—Beginning Public Speaking (3)

### UPPER DIVISION PROGRAM

#### **Required Major Courses** (48)

CD 3111—Introduction to Communicative Disorders (3)

CD 3211—Fundamentals of Speech Science (3)

CD 3212—Fundamentals of Hearing Science (3)

CD 3311—Articulation Disturbances (4)

CD 3411—Organic Disorders (4)

CD 3510—Stuttering (4)

CD 3610—Voice Disturbances (4)

CD 3711—Introduction to Audiology (3)

CD 3810—Aural Rehabilitation (4)

CD 3901—Clinical Methods (5)

CD 3910—Clinical Procedures (3)



CD 5110—Normal Language Development (4)

CD 5210—Language Disorders in Children (4)

**Required Supporting Courses (15)**

Educ 3201—Effects of Narcotics, Alcohol (1)

Educ 3203—Drug Use Information Education (1)

Math 3030—Mathematics for Liberal Education (5)

Math 3565—Statistics for the Social Sciences (4)

EdSe 3202—Phase III: Human Relations (4)

**Total for Major (106)**

Supporting courses at the upper division level, offered primarily in psychology, psychological foundations, and education, are recommended by the student's academic adviser.

## DANCE (DN)

(Department of Health and Physical Education and Recreation)

*Faculty Coordinator*—Sharon E. Friedler

## MINOR IN DANCE FOR THE B.A.A. OR B.A.S. DEGREE

The minor in dance offers training in the development of activity and teaching dance skills.

### LOWER DIVISION PROGRAM

**Required Minor Courses (10)**

DN 1311—Dance Composition I (3)

DN 1321—Dance Repertory Theatre (2)

PE 1304—Modern Dance I (1)

PE 1305—Modern Dance II (1)

Credits from PE 1300, 1302, 1303, 1310, 1312 (3)

**Required Supporting Courses (4)**

DN 1500—Introduction to the World of Dance (4)

### UPPER DIVISION REQUIREMENTS

**Required Minor Courses (15)**

DN 3311—Dance Composition II (3)

DN 3321—Advanced Dance Repertory Theatre (2)

DN 3411—Lecture Demonstration in Dance (3)

DN 3511—Dance History I

(or) DN 3521—Dance History II (3)

PE 3400—Dance Teaching (2)

PE 3901—Human Anatomy for Dancers (2)

**Required Supporting Courses (3)**

Credits from Art 1001, 1002, 1010, 1011, 1012; Hum 1004, 1005, 1006, 1007, 1103, 3101; Mu 1001, 1221, 1222, 1223; Th 1500, 1610, 3635, 3655 (3)

**Total for Minor (32)**

## **EARLY CHILD CARE AND DEVELOPMENT (Ech)**

*Faculty*—Das (Psy), Coordinator; Brutger (Art); Gilbert (EIEd); Hatten (CD); Hendrickson (SeEd); Pandey (SSD); Pearson (Soc); Richards (PE); Schauland (SpEd); Swanson (Mu); Sword (EIEd); Tamminen (Psy); Wallinga (HE)

The early child care and development program consists of an interdisciplinary curriculum designed to prepare child development personnel for a variety of work settings such as nursery schools, day care centers, child guidance clinics, group homes for children, day activity centers for children with disabilities, and home-based day care. All students take a common core of course work in child development, family relations, early childhood education, community resources, organizational management and supervision and more specialized course work in the area of their special interest. Students who satisfactorily complete this major may apply to the Minnesota Board of Teaching for nursery school licensure.

Students interested in this program should apply to Dr. Ajit K. Das, program coordinator, 320 Bohannon Hall, before April 15 in order to be admitted to the program for the fall quarter. Applicants are notified by August 15 regarding the decision on their application. The program capacity is restricted to 15 new students each year due to a limited number of sites available for practical training.

## **MAJOR IN EARLY CHILD CARE AND DEVELOPMENT FOR THE B.A.S. DEGREE**

### **LOWER DIVISION**

**Required Major Courses (15)**

ECh 3101—Caring for the Young Child (5)

ECh 3102—The Young Child with Special Needs (5)

ECh 3103—Programs for the Young Child (5)

**Required Supporting Liberal Education Courses (10)**

Psy 1003—General Psychology (5)

Soc 1100—Problems of American Society (5)

**Recommended Liberal Education Courses (33)**

Art 1002—Introduction to Art (4)

Biol 1102—Biology and Man (5)

Chem 1101—Aspects of Chemistry (4)

Geog 1201—Man and His Habitat (4)

Geol 1110—Introductory Geology (5)

PE 1010—Modern Dance (1)

Phys 1010—Ideas in Physics (3)

Psy 1105—Sensitivity to Human Variance (4)

Spch 1202—Interpersonal Communication (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (25)**

- ECh 3311—Communication Arts in Early Education (4)
- ECh 3312—Mathematics and Science in Early Education (4)
- ECh 3313—Creative Expression in Early Education (4)
- ECh 3411—Trends and Issues in Early Education (4)
- ECh 3511—Preprofessional Field Placement (9)

### **Required Supporting Courses (22-25)**

- HE 1655—Dynamics of Family Living (3)
- PsyF 5311—Child Development: Current Theory and Research (3)
- PsyF 5512—Developmental Guidance (4)
- SpEd 5201—Psychology of Exceptionality (3)

Three courses elected from at least two of the following study fields:

- CD 3111—Introduction to Speech Pathology (3)
- CD 5110—Normal Language Development (4)
- CD 5210—Language Disorders in Children (4)
- Educ 5401—The Creative and Intellectually Gifted (3)
- HE 1470—Survey of Human Nutrition (3)
- HE 3650—Topics in Family Relationships (4)
- Psy 3111—Psychology of Personality (3)
- Psy 3201—Social Psychology (3)
- Psy 3211—Group Dynamics (3)
- Psy 3531—Mental Hygiene (3)
- Psy 3811—Basic Statistical Methods (5)
- Psy 3821—Psychological Measurement (3)
- Psy 3960—Special Topics in Psychology (cr ar)
- PsyF 5111—Personality and Adjustment (3)
- PsyF 5121—Psychology of Behavior Disorders (4)
- PsyF 5312—Child Development: Research Issues (3)
- Soc 3170—General Social Psychology (4)
- Soc 3190—Current Social Issues (4)
- Soc 3920—Special Topics: Sociology of Early Childhood (4)
- Soc 5160—Sociology of Education (4)
- SpEd 5222—Introduction to Mental Retardation (3)
- SpEd 5224—Problems of the Mentally Deficient (3)
- SpEd 5305—Exceptionality in the Classroom (3)
- SpEd 5306—Language Basis for Academic Skills (4)

**Total for Major (72-75)**

## **REQUIREMENTS FOR CERTIFICATION**

- Educ 3201—Effects of Narcotics and Alcohol (1)
- Educ 3203—Drug Use Information and Education (1)
- Educ 5376—The Culturally Different Pupil (3)

## **EDUCATIONAL ADMINISTRATION (EdAd)**

The College of Education offers a sixth year program in educational administration. Through the Graduate School, both the M.A. degree and specialist certificate in educational administration are offered.



## Sixth Year Program in Educational Administration

*Codirectors*—Leonard N. Ojala  
208 Bohannon Hall, 726-8171

Karl J. Vander Horck  
224 Bohannon Hall, 726-8132

The sixth year program is intended to prepare candidates for licensure as elementary school principals, secondary school principals, or superintendents. It is *not a Graduate School program*. The applicant should understand that course work under this program will be taken as a "special" student.

**Admission**—Students applying for admission to the sixth year program must have a master's degree and be licensed as an elementary or secondary teacher, an elementary or secondary principal, or superintendent.

Admission is based on past scholastic achievement as represented by the undergraduate grade point average, previous graduate work, and scores on a graduate form of the Miller Analogies Test. Additional factors considered are evaluations by immediate supervisors, colleagues, and program faculty members.

A credentials examination fee of \$15 is required of each applicant. Persons who were previously officially admitted to and registered in a college of the University are exempt from the fee. This exemption does not extend to those registered in Continuing Education and Extension or as summer-only students.

**Program Requirements**—A minimum of 45 credits is required. The focus of the program is on the development of competencies deemed essential to the administrative role sought. Hence, no specific major or minor requirements can be set. The student's needs, current competencies, and previous preparation will determine the combination of courses and other experiences required.

**Transfer of Credit**—There is no residency requirement. Students normally will be expected to complete the largest part of their experience at UMD. However, the flexibility of the program may permit the transfer of appropriate academic work from other institutions. The amount of transfer credit allowed is determined on an individual basis by the student's advisement committee, within the policies set by the Educational Administration Advisory Council.

**Application**—Application forms for the sixth year program may be obtained from the director of programs in educational administration, College of Education, Bohannon Hall.

## ELEMENTARY EDUCATION (EIEd)

*Faculty*—Charles D. Gilbert, Ed.D., Associate Professor and Head; Merle L. Bryant, M.A., Assistant Professor; Aune M. Fadum, M.A., Assistant Professor; William C. Gemeinhardt, Ph.D., Associate Professor; John J. Jurkovich, M.A., Assistant Professor; Richard G. Lidberg, Ph.D., Associate Professor; Verna V. Norha, M.A., Assistant Professor; Mabel D. Schauland, M.A., Assistant Professor; Jeanne-Marie Sword, M.A., Assistant Professor; Donna M. Wolean, M.A., Assistant Professor

An effective elementary school teacher should possess a broad background in liberal and professional education. This professional program focuses on the structure of the various disciplines, the child as learner, the learning environment, teaching strategies in a practicum setting, and the professional quarter. As a part of the

program, the student has an opportunity to develop an individualized program around collateral fields or a minor area. Students will be better prepared for employment today if they have developed both depth and breadth of preparation through course work and areas of special interest.

Because of the personalized nature of a student's preparation within the Department of Elementary Education, freshman and transfer students should contact their elementary adviser early in their first quarter at UMD.

## **REQUIRED CORE FOR MAJORS IN ELEMENTARY EDUCATION AND KINDERGARTEN-ELEMENTARY EDUCATION**

The following courses compose the required core for the elementary education and kindergarten-elementary education majors:

### **LOWER DIVISION PROGRAM**

#### **Required Supporting Courses (23)**

Art 1002—Introduction to Art (4)<sup>1</sup>

HLth 1600—Standard First Aid (2)

Spch 1111—Beginning Public Speaking (3)<sup>1</sup>

Math 1082—Mathematics I, Elementary Education (5)<sup>1</sup>

Mu 1001—Introduction to Music (3)<sup>1</sup>

Mu 1611—Music Fundamentals (unless excused by an exam) (2)

PE 1326—Preadolescent Considerations (4)<sup>1</sup>

### **UPPER DIVISION PROGRAM**

#### **Professional Core (52)**

EEd 3108—The Child As Learner I (3)

EEd 3110—Learning Environment I (2)

EEd 3112—Teaching Strategies I (4)

EEd 3114—The Child As Learner II (3)

EEd 3116—Learning Environment II (3)

EEd 3311—Teaching Language Arts-Elementary (3)

EEd 3322—Children's Literature (3)

EEd 3344—Teaching Science-Elementary (3)

EEd 3355—Teaching Mathematics-Elementary (3)

EEd 3366—Teaching Social Studies-Elementary (3)

EEd 3373—Teaching Reading I (3)

EEd 3374—Teaching Reading II (3)

EEd 3402—Teaching Strategies II (4)

EEd 3404—Teaching Strategies III (4)

EEd 3406—Learning Environment III (3)

EEd 5800—Human Relations in Teaching (3)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

#### **Required Supporting Courses (8)**

Art 3810—Art in Elementary Education (5)

Mu 3621—Elementary School Music Teaching (3)

**Total for Professional Core (60)**

**Total for Lower Division Supporting Courses (23)**

**Total for Required Core (83)**

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<sup>1</sup>These courses can be used to partially fulfill liberal education requirements.

## **MAJOR IN ELEMENTARY EDUCATION FOR THE B.A.S. DEGREE**

Successful completion of this program qualifies a student to teach grades 1 through 6 in any elementary school in Minnesota and is a good foundation upon which to build programs leading to licensure as a special education teacher, elementary principal, or elementary school counselor, or for non-school related occupations requiring skill in working with children.

In addition to the core courses listed above, the following course is required for the major (15):

EIEd 3509—Professional Quarter (15)

**Total for Required Core (83)**

**Total for Major (98)**

In addition to the required major credits, students must complete liberal education and elective credits to total a minimum of 192 credits for graduation.

## **MAJOR IN KINDERGARTEN-ELEMENTARY EDUCATION FOR THE B.A.S. DEGREE**

Successful completion of this program qualifies a student to teach in the kindergarten, in addition to grades 1 through 6, in any elementary school in Minnesota and is a good foundation upon which to build programs leading to licensure as a nursery school teacher, special education teacher, elementary principal, or elementary school counselor, or for non-school related occupations requiring skill in working with children or with parents of children of young ages.

In addition to the core courses, the following courses are required for the major (20):

EIEd 3395—The Kindergarten (4)

EIEd 3413—Kindergarten Field Experience (1)

EIEd 3504—Professional Quarter (15)

**Total for Required Core (83)**

**Total for Major (103)**

In addition to the required major credits, students must complete liberal education and elective credits to total a minimum of 192 credits for graduation.

Students in the kindergarten-elementary education program are required to demonstrate reasonable competence on an instrument appropriate for accompanying children's singing and rhythmic activities. A departmental statement certifying to this competence must be filed prior to registration for the course EIEd 3504, Professional Quarter.

**Admission to the Major**—Although students are assigned an adviser in the Department of Elementary Education when entering the University, they are not formally accepted as a major until the end of the sophomore year. Students must have a GPA of at least 2.00 to be eligible for admission to the major. Application forms can be obtained in the Department of Elementary Education office, 221 Bohannon Hall.

**Application for Professional Quarter**—Prior to the professional quarter, the student must demonstrate satisfactory performance on selected standardized basic skill tests. Application for the professional quarter must be made during the spring quarter preceding registration for the course. Application forms can be obtained in



the office of the coordinator of field experiences. The student is responsible for fulfilling all prerequisites before beginning the professional quarter assignment.

Assignment to schools for the professional quarter will be made by the coordinator of field experiences in consultation with administrators of Duluth or area schools. Students may be required to establish residence in communities where they have been assigned.

To insure adequate student teaching supervision, the number of students who will be accepted each quarter will be determined by the department. As a result of this, it may be necessary for some students to accept a second choice of time period in which to complete the professional quarter.

## COLLATERAL FIELD

A collateral field is a combination of courses and experiences within an area of interest designed to better prepare students to teach in that area. A student who selects a collateral field must complete the requirements identified below.

### Requirements

1. A minimum of 18 credits must be completed for each collateral field. Courses and/or credits that are used to meet liberal education or elementary education departmental requirements may not be used to fulfill collateral field requirements.
2. The student must select a collateral field from one of the following areas:
  - a. *Academic*—an area of study in which UMD offers a minor. The academic area requires 16 credits of course work plus 2 credits of independent study.
  - b. *School or Teaching*—an area of study that is directly related to teaching, school, and similar activities (e.g., children's literature, reading, mathematics education, mainstreaming handicapped children, environmental studies, library). The school or teaching area requires 16 credits of course work plus 2 credits of independent study.
  - c. *Other Areas*—an area of study that is a combination of other areas or an area that does not seem to fit either of the above classifications (e.g., Indian studies-art, speech-theatre). Areas other than academic and school or teaching require 13-16 credits of course work plus 2-5 credits of independent study.
3. The course work that makes up the collateral field is elective and must be approved by the student's adviser. Prerequisites to courses included in the collateral field must be met by the student or waived by the appropriate department.
4. There is no additional requirement regarding A-N or P-N grading.
5. There is no minimum number of upper division credits required.
6. The collateral field must be listed on the student's upper division application and must be approved by the student's adviser and the academic department or area in which it is to be completed. Changes in the collateral field are permitted following normal procedure.
7. Independent study work is completed under the direction of the adviser and a faculty member from the academic department or area in which the collateral field is to be completed.

**Final Recognition**—Completion of all requirements for a collateral field will be noted on the student's transcript.

## **NURSERY SCHOOL TEACHER PROGRAM**

The Department of Elementary Education offers a nursery school teacher program that enables the student to meet the requirements of the Minnesota Board of Teaching for regular nursery school licensure. Refer to the Nursery School Teacher Program section of this bulletin for further information.

## **SPECIALIST IN READING**

The College of Education offers several programs leading to licensure in reading. These programs lead to licenses as reading specialists as granted by the Minnesota Board of Teaching. Refer to the Specialization in Reading program description later in the College of Education section of this bulletin for further information.

## **HEALTH EDUCATION (Hlth)**

(Health and Physical Education and Recreation Department)

*Faculty Coordinator*—Thomas A. Fenger

## **MAJOR IN HEALTH EDUCATION FOR THE B.A.S. DEGREE**

The health education major provides training for licensure as an elementary or secondary school health educator.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (23)**

- Biol 1001—Elements of Microbiology (4)
- EdSe 1201—Phase I: Orientation to Teaching (2)
- HE 1470—Survey of Human Nutrition (3)
- HE 1610—The Developing Child (4)
- HE 1655—Dynamics of Family Living (3)
- Hlth 1101—Personal Health (2)
- Hlth 1600—Standard First Aid (2)
- Elective credits from Hlth 1102, 1103, 1700 (3)

#### **Required Supporting Courses (28)**

- Biol 1042—Human Physiology (5)
- Biol 1102—Biology and Man (5)
- Chem 1101—Aspects of Chemistry (5)
- Psy 1003—General Psychology (5)
- Soc 1100—Problems of American Society (5)
- Spch 1202—Interpersonal Communication (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (67-81)**

- Educ 3201—Effects of Narcotics and Alcohol (1)
- Educ 3203—Drug Use Information and Education (1)
- EdSe 3101—Phase II: Learning Theory Applications (7)
- EdSe 3202—Phase III: Human Relations (4)
- EdSe 3301—Phase IV: Student Teaching (3-17)
- EdSe 3401—Phase V: The Teaching Profession (4)
- HE 3675—Marital Interaction (3)
- Hlth 3101—Personal and Community Health (3)

Hlth 3102—Community Health Problems (2)  
Hlth 3115—Consumer Health Education (3)  
Hlth 3116—Diseases of Man (3)  
Hlth 3322—Concepts in Health Education (5)  
Hlth 3323—Organization, Administration of School Health (3)  
Hlth 3400—Strategies for Health Instruction (3)  
Ind 3950—Safety Education (4)  
Psy 3215—Topics in Human Sexuality (3)  
Psy 3331—Developmental Psychology (5)  
Psy 3531—Mental Hygiene (3)  
Soc 3180—Community and Social Organization (4)  
Electives from Hlth 3103, 3700, 3900, 5700, as approved by department (3)

**Required Supporting Courses (3)**

PE 3150—Tests and Measurements (3)

**Total for Major (121-135)**

## **MINOR IN HEALTH EDUCATION FOR THE B.A.S. DEGREE**

The health education minor provides training in the health needs of the home, school population, and community.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (5)**

HE 1470—Survey of Human Nutrition (3)

Hlth 1600—Standard First Aid (2)

**Required Supporting Courses (10)**

Biol 1012—Human Anatomy

(or) Biol 1042—Human Physiology (5)

Psy 1003—General Psychology (5)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (33-35)**

Hlth 3101—Personal and Community Health (3)

Hlth 3102—Community Health Problems (2)

Hlth 3103—Readings in Health (2-4)

Hlth 3115—Consumer Health Education (3)

Hlth 3116—Diseases of Man (3)

Hlth 3322—Concepts in Health Education (5)

Hlth 3400—Strategies for Health Instruction (3)

Ind 3950—Safety Education (4)

Psy 3215—Topics in Human Sexuality (3)

Psy 3331—Developmental Psychology (5)

**Total for Minor (48-50)**

## **HOME ECONOMICS (HE)**

*Faculty*—Eleanor M. Collins, M.A., Associate Professor and Head; Ruth Ann Eaton, M.S., Assistant Professor; Marilyn S. Edwards, M.S., Instructor; Terrie M. Shannon, Ph.D., Assistant Professor; Charlotte R. Wallinga, M.S., Instructor; Judith J. Witt, M.S., Instructor



The Department of Home Economics has as its primary purpose the preparation of students for professional careers and service that relate to the improvement of individual, family, and community life. The program focuses on assisting individuals and families with concerns related to the near environment in a contemporary, changing society.

Students with individual interests or career goals in the area of home economics should consult with their adviser concerning choice of electives within the major and in related areas. Students with a special interest in working with young children should consider the nursery school teacher program in combination with either degree in home economics. Those interested in family life are encouraged to consider the family life concentration.

Home economics students are strongly urged to utilize vacation periods to gain the occupational experience required for some careers. Appropriate experiences related to the major are available in fields such as merchandising, health and welfare service, camp counseling, nursery schools, and food service.

Lower division students are admitted to the curriculum on a provisional basis. Students seeking admission to a degree program must present a home economics grade point average of 2.25 and an overall grade point average of 2.00 at the time they apply for upper division. Transfer students must have completed at least 2 quarters in residence in home economics prior to admittance to upper division. The home economics and overall grade point averages must be maintained to qualify for either degree.

## **REQUIRED CORE FOR MAJORS IN HOME ECONOMICS FOR THE B.A.A. AND B.A.S. DEGREES**

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (33-34)**

- HE 1001—Home Economics as a Profession (1)
- HE 1006—Basic Clothing Construction (4)<sup>1</sup>
- HE 1055—Introduction to Textile Fabrics (4)
- HE 1445—Food Selection and Preparation (5)
- HE 1470—Survey of Human Nutrition (3)
- HE 1500—Introduction to Furnishings (4)
- HE 1560—Introduction to Housing (4)
- HE 1610—The Developing Child (4)
- HE 1611—Child Development Field Experience (1-2)
- HE 1655—Dynamics of Family Living (3)

#### **Required Supporting Courses (32)**

- Art 1001—Art Today (4)
- Art 1002—Introduction to Art (4)
- Chem 1103-1104—General Chemistry  
(or) Chem 1110-1111—General Chemistry (10)
- Econ 1104—Principles of Economics: Micro (4)
- Psy 1003—General Psychology (5)
- Soc 1100—Problems of American Society  
(or) Soc 1400—Social Inquiry I (5)

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<sup>1</sup>Students with more advanced experience may substitute HE 3012, Advanced Clothing Construction, for this requirement with departmental consent.

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (12)**

HE 3402—Meal Management (4)

HE 3546—Equipment in the Home (3)

HE 3735—Home Management, Consumer Problems (5)

**Total for Core (77-78)**

## **MAJOR IN HOME ECONOMICS FOR THE B.A.A. DEGREE**

This major is recommended for those preparing for various careers in business, consumer affairs, and health or social agencies. A minor in another area that supports the major is strongly recommended.

## **LOWER DIVISION PROGRAM**

### **Required Major Courses**

Completion of required core (see above) (33-34)

### **Required Supporting Courses**

Completion of required core (see above) (32)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (31-32)**

Completion of required core (see above) (12)

Additional upper division credits in home economics (19-20)

**Total for Major (97)**

## **MAJOR IN HOME ECONOMICS EDUCATION FOR THE B.A.S. DEGREE**

This major is recommended for those planning to enter the teaching profession or extension service. It leads to licensure for federally funded vocational consumer and homemaking programs in secondary schools as required by the Minnesota State Plan for Vocational Education.

## **LOWER DIVISION PROGRAM**

### **Required Major Courses (35-36)**

Completion of required core (see above) (33-34)

EdSe 1201—Phase I: Orientation to Teaching (2)

### **Required Supporting Courses (41)**

Completion of required core (see above) (32)

Biol 1001—Elements of Microbiology (4)

Hlth 1101—Personal Health (2)

Credits in any courses labeled PE (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (63-64)**

Completion of required core (see above) (12)

HE 3800—Home Economics Methods I (3)

HE 3861—Home Economics Methods II (5)

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

Additional upper division credits in home economics (14-15)

**Required Supporting Courses (9)**

Econ 5003—Consumer Economics (4)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

Ind 5928—Philosophy and Practices of Vocational Education (3)

**Total for Major (149)**

## **MINOR IN HOME ECONOMICS**

### **FOR THE B.A.A. OR B.A.S. DEGREE, OR B.A. DEGREE (CLS)**

The minor programs are designed to allow students to pursue a personal interest in the field of home economics, with emphasis in one area, if desired. They are not intended to provide preparation for a role as a professional home economist.

HE 1001—Home Economics as a Profession (1)

One of the five options listed below:

*Child Development and Family Relationship*

Minimum of 15 credits from HE 1610, 1611, 1655, 3675, and 5655.

*Clothing and Textile*

Minimum of 15 credits from HE 1006, 1055, 3005, 3012, 3016, and 5025.

*Foods and Nutrition*

Minimum of 15 credits from HE 1445, 1470, 3402, 3425, 3432, 3481, and 5450.

*Housing and Home Furnishings*

Minimum of 15 credits from HE 1055, 1500, 1560, 3546, 3575, and 5525.

*General Home Economics*

At least one course from each of the following groups;

- a. HE 1610, 1655, 3675
- b. HE 1006, 1055, 3005, 3012
- c. HE 1445, 1470, 3432
- d. HE 1500, 1560, 3546, 3575

Electives to total 28 credits; 12 credits should be at the 3000 level or above.

**Total for Minor (28)**

## **FAMILY LIFE CONCENTRATION FOR THE B.A.S. DEGREE**

This program includes additional preparation in family life education for those who wish to focus all or part of their professional effort in this area. The concentration is designed to prepare students for licensure as a family life teacher in secondary schools.

Students seeking the family life concentration must complete the required courses for the home economics education major. In addition, they must complete HEEd 5600, Teaching Family Life Education (3), and 11 elective credits in family and/or child development courses in the department.

**Required Supporting Courses**

Credits in social psychology and/or group dynamics (6)

Additional credits, approved by the adviser, selected from a minimum of three supporting areas, including American Indian studies, anthropology, geography, health, political science, psychology, sociology, and speech (20)



### **Total Additional Credits for Concentration (26)**

Interested students should confer with an adviser as early as possible, since many recommended courses in the supporting areas will also fulfill liberal education requirements. Revisions in the program will be made to comply with changing state licensing requirements as they occur.

## **INDUSTRIAL AND TECHNICAL STUDIES (Ind)**

*Faculty*—Bernard J. DeRubeis, M.S., Associate Professor and Head; Clifford D. Alexander, B.Arch., Associate Professor; William F. Ardren, M.A., Assistant Professor; Lee E. Billings, M.S., Assistant Professor; Harvey E. Burski, M.S., Assistant Professor; Lionel F. Coffin, M.A., Assistant Professor; Robert V. Krejcie, Ed.D., Associate Professor; Lloyd D. Paler, M.S., Assistant Professor; John N. Ringsred, M.S., Assistant Professor; John C. Voss, B.S., Instructor; Howard O. Wickler, Ed.S., Assistant Professor.

The Department of Industrial and Technical Studies offers a choice of four curricula: to prepare for teaching in the field of industrial education, to prepare for teaching in vocational-technical education fields, to prepare for industrial-technical careers in industry, and to prepare for industrial safety supervisory positions in business, education, government, and industry.

The baccalaureate degree major in industrial education includes the generalized training necessary to teach industrial arts at the middle school or junior high school level. A second industrial education option, the comprehensive major, provides for an in-depth technical concentration or broad generalization and is designed for teachers of secondary and postsecondary industrial education and/or vocational-technical programs.

The associate and baccalaureate degree programs in vocational-technical education are designed for in-service teachers of vocational education or for individuals with the extensive technical work experience necessary to qualify for vocational-technical teacher licensure. Both programs allow advanced standing credit for previously acquired technical competence resulting from industrial work experience, completion of other educational programs, or combinations thereof. Students must have departmental approval prior to enrollment in these programs.

The baccalaureate degree program with a major in industrial technology provides three specialization options as well as a generalist option for those planning careers in industry. The specialization options provide an opportunity for an in-depth study in a single technical area whereas the generalist option provides an opportunity to integrate technical course work from various areas. Choice of option is dependent upon the student's industrial career choice. The industrial technology minor is recommended for those planning careers in business or industry and is available to students pursuing most baccalaureate degrees at UMD.

Students intending to major in the Department of Industrial and Technical Studies must complete the required lower division program and declare their major before upper division papers can be filed.

The master of industrial safety degree program is designed to serve baccalaureate degree graduates with backgrounds in industrial-technical education, engineering, business administration, and other appropriate fields who are presently working in or plan to work in industrial safety supervisory or managerial capacities in business, education, government, or industry.

## Industrial Education Programs

### MAJOR IN INDUSTRIAL EDUCATION FOR THE B.A.S. DEGREE

This major is recommended for students intending to teach in middle school or junior high school industrial education programs.

#### LOWER DIVISION PROGRAM

##### Required Major Courses (41)

Ind 0900—Introduction to Industrial Education (0)

Ind 1102—Basic Wood Technology (4)

Ind 1302—Fundamentals of Power (3)

Ind 1310—Small Gasoline Engines (2)

Ind 1402—Crafts (3)

Ind 1441—Home Maintenance (2)

Ind 1501—Basic Drawing (4)

Ind 1511—Technical Drawing I (4)

Ind 1602—Introduction to Graphic Arts (4)

Ind 1703—General Metals (3)

Ind 1740—Basic Machine Tool Practice (4)

Ind 1805—Fundamentals of DC Electricity (4)

Ind 1807—Basic Electronics (2)

EdSe 1201—Phase I: Orientation to Teaching (2)

##### Required Supporting Courses (36)

Chem 1103—General Chemistry (5)

Engl 1106—Freshman Composition (4)<sup>1</sup>

Engl 1107—Freshman Composition, technical writing section (4)<sup>1</sup>

HLth 1101—Personal Health (2)<sup>1</sup>

Math 1110—College Algebra (5)

Phys 1001—Elementary Physics (4)<sup>1</sup>

Phys 1002—Elementary Physics (4)<sup>1</sup>

Psy 1003—General Psychology (5)<sup>1</sup>

Additional credits in physical education courses (3)<sup>1</sup>

#### UPPER DIVISION PROGRAM

##### Required Major Courses (52)

Ind 3421—Plastics (3)

Ind 3920—Equipment and Facility Planning (2)

Ind 3950—Safety Education (4)

Ind 5921—Teaching Vocational Subjects (3)

Ind 5922—Tests in Vocational Subjects (3)

Ind 5923—Managing Multiple Activities (3)

Ind 5929—Analysis and Course Organization (3)

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3201—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (129)**

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<sup>1</sup>These courses also fulfill liberal education requirements.

**Minnesota Work Experience Licensing Requirement**—Effective in 1979, teachers seeking middle school industrial education licensure will be required to have completed a minimum of 1,000 hours of approved recent and relevant industrial wage earning experience and Ind 3901 and 3902, Industrial Internships I and II (3 cr each), or a combination thereof.

## **COMPREHENSIVE MAJOR IN INDUSTRIAL EDUCATION FOR THE B.A.S. DEGREE**

This major is recommended for students intending to teach in secondary industrial education and/or vocational-technical education programs.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (41)**

- Ind 0900—Introduction to Industrial Education (0)
- Ind 1102—Basic Wood Technology (4)
- Ind 1302—Fundamentals of Power (3)
- Ind 1310—Small Gasoline Engines (2)
- Ind 1402—Crafts (3)
- Ind 1441—Home Maintenance (2)
- Ind 1501—Basic Drawing (4)
- Ind 1511—Technical Drawing I (4)
- Ind 1602—Introduction to Graphic Arts (4)
- Ind 1703—General Metals (3)
- Ind 1740—Basic Machine Tool Practice (4)
- Ind 1805—Fundamentals of DC Electricity (4)
- Ind 1807—Basic Electronics (2)
- EdSe 1201—Phase I: Orientation to Teaching (2)

#### **Required Supporting Courses (36)**

- Chem 1103—General Chemistry (5)<sup>1</sup>
- Engl 1106—Freshman Composition (4)<sup>1</sup>
- Engl 1107—Freshman Composition, technical writing section (4)<sup>1</sup>
- Hlth 1101—Personal Health (2)<sup>1</sup>
- Math 1110—College Algebra (5)
- Phys 1001—Elementary Physics (4)<sup>1</sup>
- Phys 1002—Elementary Physics (4)<sup>1</sup>
- Psy 1003—General Psychology (5)<sup>1</sup>
- Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses for Generalist Program (81)**

- Ind 1353—Automotive Mechanics (4)
- Ind 1710—Basic Welding (3)
- Ind 3113—Furniture Design, Construction (5)
- Ind 3121—Building Construction (4)
- Ind 3421—Plastics (3)
- Ind 3642—Offset Lithography (4)
- Ind 3702—Metal Fabrication (5)
- Ind 3836—Special Solid State Devices (4)
- Ind 3920—Equipment and Facility Planning (2)
- Ind 3950—Safety Education (4)

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<sup>1</sup>These courses also fulfill liberal education requirements.



Ind 5921—Teaching Vocational Subjects (3)  
Ind 5922—Tests in Vocational Subjects (3)  
Ind 5923—Managing Multiple Activities  
(or) Ind 5928—Philosophy and Practices of Vocational Education (3)  
Ind 5929—Analysis and Course Organization (3)  
EdSe 3101—Phase II: Learning Theory Applications (7)  
EdSe 3201—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)

**Required Major Courses for Specialist and Dual Concentration Programs (81)**

Special advisement forms, available in the department office, specify technical course requirements in the available areas of concentration: communications, construction, drawing, electricity-electronics, energy, graphic arts, machine tool-metals, manufacturing, power, transportation, and wood technology.

EdSe 3101—Phase II: Learning Theory Application (7)  
EdSe 3201—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)  
Ind technical courses (32)  
Ind 3920—Equipment and Facility Planning (2)  
Ind 3950—Safety Education (4)  
Ind 5921—Teaching Vocational Subjects (3)  
Ind 5922—Tests in Vocational Subjects (3)  
Ind 5923—Managing Multiple Activities  
(or) Ind 5928—Philosophy and Practices of Vocational Education (3)  
Ind 5929—Analysis and Course Organization (3)

**Total for Major (158)**

**Minnesota Work Experience Licensing Requirement**—Effective in 1979, teachers seeking secondary school industrial education licensure will be required to have completed a minimum of 1,500 approved hours of recent and relevant industrial wage earning experience and Ind 3901, 3902, and 3903, Industrial Internships I, II, and III (3 cr each), or a combination thereof. Secondary vocational-technical licensure requires a total of 3,000 hours of approved industrial wage earning experience, half of which can be acquired through the internship program.

## Vocational Teacher Education Program

### ASSOCIATE IN VOCATIONAL TEACHER EDUCATION DEGREE

This program is recommended for in-service vocational teachers or for individuals with extensive technical work experience intending to teach in postsecondary vocational-technical education programs.

#### DEGREE PROGRAM

**Required Major Courses and Technical Electives (45)**

Upon acceptance into this program by the department, individuals who have previously acquired technical competence resulting from industrial work experience, completion of other educational programs, or combinations thereof may qualify for

an allowance of up to a maximum of 45 credits to fulfill this requirement. In cases where the maximum allowance is not granted, the remaining credits for this requirement will be selected with adviser consent. Advanced credit, if allowed, will not be granted until the student has completed all other degree requirements. This credit may be used only to fulfill requirements for the vocational teaching degrees and not to fulfill requirements for traditional degrees.

**Required Technical Courses (10)**

Technical courses, selected with an adviser, are based on the student's area of vocational teaching specialization.

**Required Professional Courses (21)**

Professional industrial education courses are selected from the course work identified for vocational teacher licensure in the Minnesota State Plan for Vocational Education. Students must select courses from the following list. Starred courses are required and common to all areas.

Ind 3975—Industrial Supervision (3)

Ind 5921—Teaching Vocational Subjects (3)\*

Ind 5922—Tests in Vocational Subjects (3)\*

Ind 5924—Audiovisual Materials (3)

Ind 5926—Coordination Techniques (3)

Ind 5928—Philosophy and Practices of Vocational Education (3)\*

Ind 5929—Analysis and Course Organization (3)\*

Ind 5950—Vocational Education Surveys (3)

Ind 5953—Conference Leading Techniques (3)

Ind 5952—Vocational Education Workshop (3)

Ind 5956—Vocational Guidance (3)

**Required Supporting Courses (20)**

An appropriate general education program, based upon identifiable student needs, will be outlined by an adviser. The following courses, which are required of all Minnesota teachers, must be included:

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

Educ 5376—The Culturally Different Pupil (3)

Educ 5379—Humanizing Education (3)

**Total for Degree (96)**

All course work earned in fulfillment of the associate in vocational teacher education degree requirements may be transferred to the baccalaureate degree program. These credits are reassigned to the appropriate degree requirement areas at the time of application.

## **COMPREHENSIVE MAJOR IN VOCATIONAL-TECHNICAL EDUCATION FOR THE B.A.S. DEGREE**

This major is recommended for in-service vocational teachers or for individuals with extensive technical work experience intending to teach in secondary and post-secondary vocational-technical education programs.

### **LOWER DIVISION PROGRAM**

**Required Major Courses and Technical Electives (45)**

Upon acceptance into this program by the department, individuals who have previously acquired technical competence resulting from industrial work experience, completion of other educational programs, or combinations thereof may qualify for

an allowance of up to a maximum of 45 credits to fulfill this requirement. In cases where the maximum allowance is not granted, the remaining credits for this requirement will be selected with adviser consent. Advanced credit, if allowed, will not be granted until the student has completed all other degree requirements. This credit may be used only to fulfill requirements for the vocational teaching degrees and not to fulfill the requirements for traditional degrees.

### **Required Supporting Courses**

Candidates for this major must fulfill the regular liberal education requirements.

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (53)**

Technical and professional course work is selected by the student with adviser consent and based on the student's area of vocational teaching specialization. The following courses, which are common to all areas, must be included:

- Ind 5921—Teaching Vocational Subjects (3)
- Ind 5922—Tests in Vocational Subjects (3)
- Ind 5924—Audiovisual Materials (3)
- Ind 5928—Philosophy and Practices of Vocational Education (3)
- Ind 5929—Analysis and Course Organization (3)
- Ind 5953—Conference Leading Techniques (3)
- Educ 3201—Effects of Narcotics and Alcohol (1)
- Educ 3203—Drug Use Information and Education (1)
- Educ 5376—The Culturally Different Pupil (3)
- Educ 5379—Humanizing Education (3)

**Total for Major (98)**

**Minnesota Vocational Trade and Industrial Work Experience Licensing Requirement**—Teachers seeking secondary or postsecondary vocational licensure must complete a minimum of 3,000 or 6,000 hours, respectively, of approved recent and relevant occupational experience at the journeyman level or equivalent. Completion of industrial internship programs may be used in partial fulfillment of this requirement.

## **Industrial Technology Programs**

### **MAJOR IN INDUSTRIAL TECHNOLOGY FOR THE B.A.S. DEGREE**

This major is recommended for students intending to seek careers in industry.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (17)**

- Ind 0900—Introduction to Industrial Education (0)
- Ind 1302—Fundamentals of Power (3)
- Ind 1502—Technical Blueprint Reading (3)
- Ind 1703—General Metals (3)
- Ind 1740—Basic Machine Tool Practice (4)
- Ind 1805—Fundamentals of DC Electricity (4)

##### **Required Supporting Courses (38)**

- BOEE 1204—Introduction to Data Processing (3)
- Chem 1103—General Chemistry (5)<sup>1</sup>
- Engl 1106—Freshman Composition (4)<sup>1</sup>
- Engl 1107—Freshman Composition, technical writing section (4)<sup>1</sup>



Math 1110—College Algebra (5)  
Phys 1001—Elementary Physics (4)<sup>1</sup>  
Phys 1002—Elementary Physics (4)<sup>1</sup>  
Phys 1003—Elementary Physics (4)<sup>1</sup>  
Psy 1003—General Psychology (5)<sup>1</sup>

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses for Electronics Specialization (58)**

Ind 1806—Fundamentals of AC Electricity (4)  
Ind 3802—AC Networks for Electronics (4)  
Ind 3824—Special Applications in Electronic Design (5)  
Ind 3825—Electron Tubes (4)  
Ind 3835—Design With Transistors (4)  
Ind 3836—Special Solid State Devices (4)  
Ind 3837—Solid State Design Applications (4)  
Ind 3840—Linear Integrated Circuits (4)  
Ind 3852—Introduction to Computer Design (4)  
Ind 3950—Safety Education (4)  
Ind 3951—Industrial Practices and Processes (3)  
Ind 3971—Training Programs in Industry (2)  
Ind 3975—Industrial Supervision (3)  
Ind 5953—Conference Leading Techniques (3)  
BA 3304—Fundamentals of Management (3)  
Industrial-technical elective courses (3)

#### **Required Major Courses for Metals Specialization (58)**

BA 3304—Fundamentals of Management (3)  
Ind 1501—Basic Drawing (4)  
Ind 1511—Technical Drawing I (4)  
Ind 1710—Basic Welding (3)  
Ind 3322—Hydraulics, Pneumatics, Fluidics (3)  
Ind 3512—Technical Drawing II (4)  
Ind 3702—Metal Fabrication (5)  
Ind 3711—Combination Welding (3)  
Ind 3735—NC and EDM Machining (4)  
Ind 3736—Advanced Machine Tool Practice (4)  
Ind 3737—Die Design and Construction (4)  
Ind 3750—Applied Physical Metallurgy (2)  
Ind 3950—Safety Education (4)  
Ind 3951—Industrial Practices and Processes (3)  
Ind 3971—Training Programs in Industry (2)  
Ind 3975—Industrial Supervision (3)  
Ind 5953—Conference Leading Techniques (3)

#### **Required Major Courses for Power Specialization (58)**

BA 3304—Fundamentals of Management (3)  
Ind 1310—Small Gasoline Engines (2)  
Ind 1330—Basic Aeronautics (3)  
Ind 1353—Automotive Mechanics (3)  
Ind 1806—Fundamentals of AC Electricity (4)  
Ind 3322—Hydraulics, Pneumatics, Fluidics (3)  
Ind 3323—Power Transmissions (2)  
Ind 3356—Air Conditioning (2)  
Ind 3357—Engine Machining (4)

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<sup>1</sup>These courses also fulfill liberal education requirements.

Ind 3702—Metal Fabrication (5)  
Ind 3750—Applied Physical Metallurgy (2)  
Ind 3835—Design with Transistors (4)  
Ind 3836—Solid State Devices (4)  
Ind 3950—Safety Education (4)  
Ind 3951—Industrial Practices and Processes (3)  
Ind 3971—Training Programs in Industry (2)  
Ind 3975—Industrial Supervision (3)  
Ind 5953—Conference Leading Techniques (3)  
Industrial-technical elective courses (2)

**Required Major Courses for Generalist Program (58)**

The generalist program is designed for students whose industrial career objectives can best be achieved through an integration of technical course work from various areas. These diversified programs will be planned by the student in consultation with an adviser. Technical areas of study from which course work will be selected include: construction, drafting, electronics, graphic arts, machine tools, metals, power, and woods.

BA 3304—Fundamentals of Management (3)  
Ind 3950—Safety Education (4)  
Ind 3951—Industrial Practices and Processes (3)  
Ind 3971—Training Programs in Industry (2)  
Ind 3975—Industrial Supervision (3)  
Ind 5953—Conference Leading Techniques (3)  
Industrial-technical elective courses (40)

**Total for Major (113)**

## **MINOR IN INDUSTRIAL TECHNOLOGY FOR THE B.A.S. DEGREE**

This minor is recommended for students intending to seek careers in business and industry.

**Required Minor Courses (15)**

Ind 3950—Safety Education (4)  
Ind 3951—Industrial Practices and Processes (3)  
Ind 3971—Training Programs in Industry (2)  
Ind 3975—Industrial Supervision (3)  
Ind 5953—Conference Leading Techniques (3)

**Elective Minor Courses (23)**

Elective technical course work is selected by the student, with adviser consent, from the following technical areas: construction, drafting, electronics, graphic arts, machine tools, metals, power, and woods.

**Total for Minor (38)**

## **MASTER OF INDUSTRIAL SAFETY DEGREE PROGRAM**

*Coordinator*—Robert V. Krejcie

This program is designed to prepare qualified personnel for safety supervisory and management positions in business, government, and industry.

**Admission Requirements**—A baccalaureate degree from an accredited college or university, preferably with a major in industrial education, engineering, or other appropriate field that would enable an individual to relate to the technical nature of

industrial operations is required for admission. Baccalaureate degree holders without such technical majors but with other relevant backgrounds or qualifications are also considered. If deficiencies exist, candidates may be accepted in the program contingent upon the successful completion of certain courses designed to correct the deficiencies.

**Application Procedure**—To enable processing by the applicant screening committee and scheduling the candidate for the program aptitude battery, applications for admission must be submitted at least 2 months prior to the quarter in which the applicant expects to register. Applicants should apply as early as possible because the yearly enrollment is limited to 15 students. Application forms may be obtained from the UMD Office of Admissions. Admission is based upon undergraduate scholastic records, past work experience, achievement on the departmental safety placement examination, and evaluation by the safety screening committee. The placement examination is given in the spring and fall of each year.

**Program Requirements**—Students enrolled in this program must complete a program of 45 graduate quarter credits and maintain an overall graduate grade point average of 3.00 or better. The minimum residence requirement for the degree is 3 academic quarters. In addition, an industrial internship or field research project is required.

The curriculum has been developed on the basis of a validated analysis of the operational tasks and responsibilities of industrial safety specialists and in collaboration with an advisory committee composed of representatives from the Minnesota Safety Council and diversified businesses and industries. The course work is devoted primarily to interpretation and application of principles, practices, and compliance standards related to accident prevention, control, and reduction in an occupational setting.

### **Required Courses**

- Ind 5953—Conference Leading Techniques (3)
- Psy 3704—Industrial and Business Psychology (3)
- Safe 5000—Principles and Practices of Accident Prevention (2)
- Safe 5001—OSHA Voluntary Compliance (3)
- Safe 5002—Safety and Health Standards, Codes and Regulations (3)
- Safe 5003—Legal Implications in Safety (2)
- Safe 5004—Organization, Administration of Safety Programs (3)
- Safe 5005—Situational Analysis, Statistical Techniques (3)
- Safe 5100—Industrial First Aid (2)
- Safe 5101—Hearing Conservation (3)
- Safe 5102—Industrial Toxicology (2)
- Safe 5104—Fire Prevention and Control (2)
- Safe 5105—Civil Defense, Emergency Preparedness (2)
- Safe 5106—Physical Hazard Control (2)
- Safe 5107—Industrial Ventilation (2)
- Safe 5110—Construction Safety (2)
- Safe 5111—Traffic and Fleet Safety (2)
- Safe 5112—Elements of Industrial Hygiene (2)
- Safe 5900—Internship in Industrial Safety
- (or) Safe 5901—Problems in Industrial Safety (2)

**Total for Degree (45)**



## NURSERY SCHOOL TEACHER PROGRAM

The Department of Elementary Education offers a nursery school teacher program that enables a student to meet the requirements of the Minnesota Board of Teaching for regular nursery school licensure. The applicant must hold a baccalaureate degree or must have attained at least 96 credits toward a baccalaureate degree. Undergraduate students are required to have a minimum overall GPA of 2.00.

The program will admit 20 students each year from the following three broad categories: (1) students planning to major in kindergarten-primary education who desire a nursery school endorsement, (2) students pursuing degree programs in fields other than elementary education who wish to meet state licensure requirements for nursery school teaching, (3) special students with a baccalaureate degree who desire to meet state licensure requirements for nursery school teachers.

Requests for application may be addressed to the Coordinator of the Nursery School Teacher Program, Department of Elementary Education, 221 Bohannon Hall, University of Minnesota, Duluth, Minnesota 55812.

### Required Courses

#### Early Childhood Education

EIEd 3393—The Nursery School (3)

EIEd 3395—The Kindergarten (4)

EIEd 3413—Kindergarten Field Experience (1)

EIEd 3414—Nursery School Field Experience (1)

EIEd 3500—Nursery School Student Teaching (7)

#### Child and Family Development

HE 1655—Dynamics of Family Living (3)

Psy 3311—Child Development (3)

(or) HE 1610—The Developing Child (4)

### Elective Courses

At least two of the following courses from two different areas: CD 5100; Educ 5750; Engl 1810; HE 1470; Psy 3111, 3201, 3211, 3531, 3821, 5111, 5121, 5311, 5312, 5512; Soc 3170, 3180, 3190, 3920; SpEd 5201 (6)

**Total for Program (28-29)**

## HEALTH AND PHYSICAL EDUCATION AND RECREATION (HPER)

*Faculty*—Mel R. Fratzke, P.E.D., Associate Professor and Head; Thomas A. Fenger, Ph.D., Assistant Professor; Sharon Friedler, M.F.A., Assistant Professor; Allan A. Holland, M.S., Adjunct Instructor; David Hopkins, P.E.D., Assistant Professor; Joann M. Johnson, Ph.D., Professor; Neil I. Ladsten, M.S., Instructor; Edmond F. Lundstrom, M.S., Instructor; James S. Malosky, M.S., Associate Professor; Mary M. Mullen, M.S., Assistant Professor; Ruth H. Richards, M.S., Assistant Professor; Donald P. Roach, M.S., Assistant Professor; Neale L. Roth, M.Ed., Adjunct Instructor; Eleanor C. Rynda, M.S., Assistant Professor.

The Department of Health and Physical Education and Recreation offers the following programs: health major (B.A.S.), health minor (B.A.S.), physical education major (B.A.A. and B.A.S.), physical education minor (B.A.A. and B.A.S.), recreation minor

(B.A.A. and B.A.S.), dance minor (B.A.A. and B.A.S.), coaching licensure for boys' and girls' interscholastic sports. A number of the department's courses may be used to fulfill liberal education requirements.

## **Physical Education (PE)**

### **MAJOR IN PHYSICAL EDUCATION FOR THE B.A.S. DEGREE**

The major in physical education for the B.A.S. degree meets state licensure requirements for teaching in grades K-12 in the state of Minnesota.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (20)**

EdSe 1201—Phase I: Orientation to Teaching (2)  
Elective credits from PE 1200 to 1299 (2)  
Elective credits from PE 1300 to 1320 (2)  
Elective credits from PE 1400 to 1499 (2)  
Elective credits from PE 1500 to 1599 (2)  
Elective credits from PE 1600 to 1699 (2)  
Elective credits from PE 1700 to 1799 (2)  
Elective credits from PE 1800 to 1899 (2)  
PE 1326—Preadolescent Considerations (4)

##### **Required Supporting Courses (30)**

Biol 1012—Human Anatomy (5)  
Biol 1042—Human Physiology (5)  
Biol 1109—General Biology (5)  
Chem 1101—Aspects of Chemistry (5)  
Hlth 1600—Standard First Aid (2)  
Phys 1010—Ideas in Physics  
(or) Phys 1015—Highlights in Physics (3)  
Psy 1003—General Psychology (5)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (64-78)**

EdSe 3202—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (3-17)  
EdSe 3401—Phase V: The Teaching Profession (4)  
PE 3100—Adapted Physical Education (3)  
PE 3112—Foundations of Physical Education (4)  
PE 3113—Motor Learning (3)  
PE 3115—Physiological Application to Sport (3)  
PE 3117—Sport and the American Society (3)  
PE 3118—Human Biomechanics (4)  
PE 3119—Performance Assessment (3)  
PE 3120—Teaching Physical Education (3)  
PE 3150—Tests and Measurements (3)  
PE 3333—Individual Sports: Theory-Practice (4)  
PE 3334—Team Sports: Theory-Practice (4)  
EdSe 3101—Phase II: Learning Theory Applications (7)  
Credits from PE 1000 to 5999 not previously chosen (9)

##### **Required Supporting Courses (12)**

CC 3116—Applied Sports Science (4)

Hlth 3101—Personal and Community Health (3)

Psy 3331—Developmental Psychology (5)

**Total for Major (126-140)**

## **MAJOR IN PHYSICAL EDUCATION FOR THE B.A.A. DEGREE**

The major in physical education for the B.A.A. degree is designed to prepare students for nonteaching positions in physical education in allied occupational areas.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (18)**

Elective credits from PE 1200 to 1299 (2)

Elective credits from PE 1300 to 1320 (2)

Elective credits from PE 1400 to 1499 (2)

Elective credits from PE 1500 to 1599 (2)

Elective credits from PE 1600 to 1699 (2)

Elective credits from PE 1700 to 1799 (2)

Elective credits from PE 1800 to 1899 (2)

PE 1326—Preadolescent Considerations (4)

#### **Required Supporting Courses (30)**

Biol 1012—Human Anatomy (5)

Biol 1042—Human Physiology (5)

Biol 1109—General Biology (5)

Chem 1101—Aspects of Chemistry (5)

Hlth 1600—Standard First Aid (2)

Phys 1010—Ideas in Physics

(or) Phys 1015—Highlights in Physics (3)

Psy 1003—General Psychology (5)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (43)**

PE 3100—Adapted Physical Education (3)

PE 3112—Foundations of Physical Education (4)

PE 3113—Motor Learning (3)

PE 3116—Physiological Application to Sport (3)

PE 3117—Sport and the American Society (3)

PE 3118—Human Biomechanics (4)

PE 3119—Performance Assessment (3)

PE 3217—The World of Sport (3)

Rec 3100—Recreation and Leisure (3)

Credits from PE 1000 to PE 5999 not previously chosen (14)

#### **Required Supporting Courses (8)**

Hlth 3101—Personal and Community Health (3)

Psy 3331—Developmental Psychology (5)

**Total for Major (99)**



## MINOR IN PHYSICAL EDUCATION FOR THE B.A.A. OR B.A.S. DEGREE

The minor in physical education is designed to provide training for students who are in other teaching or nonteaching majors.

### LOWER DIVISION PROGRAM

#### **Required Minor Courses (10)**

Credits from PE 1000 to 1999 (10)

#### **Required Supporting Courses (5)**

Biol 1012—Human Anatomy

(or) Biol 1042—Human Physiology (5)

### UPPER DIVISION PROGRAM

#### **Required Minor Courses (20)**

Credits from PE 3100, 3112, 3113, 3115, 3117, 3118 (12)

Credits from PE 1000 to 5999 or CC 3100 to 3999 (8)

**Total for Minor (35)**

## PSYCHOLOGY (Psy)

*Faculty*—Robert J. Falk, Ph.D., Associate Professor and Head; Iver Bogen, Ph.D., Associate Professor; Bernard J. Covner, Ph.D., Associate Professor; Ajit K. Das, Ph.D., Associate Professor; Kamal S. Gindy, M.A., Assistant Professor; Eugene E. Grossman, Ph.D., Assistant Professor; Moy F. Gum, Ph.D., Professor; William J. Krossner, Ph.D., Associate Professor; Jane E. Maddy, M.A., Instructor; Daniel B. Madsen, Ph.D., Assistant Professor; Howard I. Mickelson, Ph.D., Assistant Professor; Marlowe H. Smaby, Ph.D., Associate Professor; Armas W. Tamminen, Ph.D., Professor

The basic commitment of the Department of Psychology is to excellence in teaching, the advancement of knowledge of human behavior through scientific research, and the facilitation of sound individual and interpersonal development. These goals are pursued by both students and faculty through formal study, experiential learning, innovative approaches to instruction, and creative community-oriented service.

**Honors Program**—Senior psychology majors who have a grade point average of 3.25 in psychology and 3.00 overall are eligible for honors work. Honors work may be completed as an individual honors research project (Psy 3977) or as an honors project (Psy 3997), under the direction of an adviser selected by the student. Eligible students are urged to consult their adviser and the program before the end of their junior year.

## MAJOR IN PSYCHOLOGY FOR THE B.A. DEGREE (CLS)

The major in psychology for the B.A. degree is designed to provide the student with a firm grounding in the discipline. The curriculum covers major established subdivisions of the discipline including developmental, social, physiological, and experimental psychology. The opportunity to study some of the newer fields, such as group dynamics, human sexuality, and psycholinguistics, is also offered.

### **LOWER DIVISION PROGRAM**

#### **Required Major Course (5)**

Psy 1003—General Psychology (5)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (40)**

Psy 3021-3022—Basic Experimental Design and Methodology (10)

Psy 3081—Systems of Psychology (3)

Psy 3811—Basic Statistical Methods (5)

Three courses from: Psy 3041, 3061, 3111, 3201, 3611, 3821, PsyF 5121

Upper division elective courses in psychology to complete the 45 credits required for the major

(Psy 3811 and 3021-3022 should be completed by the end of the junior year)

**Total for Major (45)**

### **MINOR IN PSYCHOLOGY FOR THE B.A. DEGREE (CLS)**

The minor in psychology is intended to provide an academic study of human behavior that will complement a student's preparation in other fields of liberal education.

#### **LOWER DIVISION PROGRAM**

##### **Required Minor Course (5)**

Psy 1003—General Psychology (5)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (19)**

Upper division elective courses in psychology (19)

**Total for Minor (24)**

### **RECREATION (Rec)**

(Department of Health and Physical Education and Recreation)

*Faculty Coordinator—Edmond F. Lundstrom*

### **MINOR IN RECREATION FOR THE B.A.A. OR B.A.S. DEGREE**

The minor in recreation is designed to meet the needs of students interested in community recreation and/or outdoor recreation.

#### **LOWER DIVISION PROGRAM**

##### **Required Minor Courses (10)**

Hlth 1600—Standard First Aid (2)

Eight courses from Rec 1000 to 1999 or PE 1000 to 1999, as *approved by the department* (8)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (21)**

Rec 3100, 3300, 3350 (9)

Credits from courses numbered above 3000, to include a minimum of 6 credits of recreation courses; all selections must be approved by the department (12)

**Total for Minor (31)**

## SECONDARY EDUCATION (SeEd)

*Faculty*—Leonard N. Ojala, M.Ed., Assistant Professor and Head; Judith C. Ahring, Ph.D., Visiting Associate Professor; Dennis L. Anderson, Ph.D., Assistant Professor; Thomas G. Boman, Ph.D., Professor; Dean A. Crawford, Ph.D., Professor; Charles L. Frederick, Ph.D., Assistant Professor; Francis A. Guldbrandsen, Ph.D., Assistant Professor; A. Dean Hendrickson, Ph.D., Professor; Ronald J. McKee, Ed.D., Assistant Professor; Cyril M. Milbrath, Ph.D., Associate Professor; Alvin W. Ollenburger, Ph.D., Professor; Valworth R. Plumb, Ph.D., Professor; George Starr, M.A., Assistant Professor; Karl J. Vander Horck, Ph.D., Assistant Professor; John E. Verrill, Ph.D., Professor

The mission of the faculty and staff of the Department of Secondary Education is to prepare teachers for the secondary schools and to provide a wide range of in-service and graduate programs for school personnel desiring to improve and upgrade their professional services. In addition, the department participates in a variety of activities dealing with educational development and research, professional service, and programs in general education.

## Secondary Teacher Education Program (STEP)

**Major Areas of Concentration**—Students preparing themselves to be licensed by the State of Minnesota Board of Teaching to teach in the secondary schools must meet the degree requirements of the College of Education and complete at least one secondary teaching major in the college. A complete list of teaching majors and minors follows this section. Specific requirements for each teaching major are found in the appropriate study field section of this bulletin. For example, the requirements for the teaching major in mathematics are detailed in the Mathematics listing in the College of Letters and Science section of the bulletin.

Students receive a complete orientation to the secondary teacher education program as part of EdSe 1201, Phase I: Orientation to Teaching (2 cr). This course is normally taken in the student's sophomore year or at the earliest opportunity.

**Minor Areas of Concentration**—Although a minor is not required for a degree from the College of Education, students may find it helpful to complete a teaching minor to complement their teaching major(s). The state of Minnesota currently allows a school system to utilize a teacher no more than half time in a minor area of preparation. Regulations currently require that a teaching minor be upgraded to a teaching major within 7 years of initial certification if the certification is to be maintained.

Students planning to complete a teaching minor frequently must complete a program in teaching methods appropriate for the minor and may be required to complete some student teaching in the area. Details regarding these requirements can be obtained from the student's adviser in the Department of Secondary Education.

## PROFESSIONAL EDUCATION SEQUENCE

Courses in the professional education sequence are included as a part of each teaching major. A brief summary of the professional components follows:

### **EdSe 1201—Phase I: Orientation to Teaching (2 cr)**

This first course in the professional education sequence is designed to assist students in examining the profession of secondary school teaching and in analyzing their professional career goals in teaching. Students spend a mini-



mum of 15 hours in a public school observing teachers at work and complete a series of assignments dealing with the teaching profession and personal career decision making. Students are encouraged to enroll in this course in their sophomore year.

### **EdSe 3101—Phase II: Learning Theory Applications (7 cr)**

Phase II is a combination of practical experience in secondary schools and campus-based learning exercises. Each student is assigned as a beginning apprentice to a teacher in a public school for a minimum of 6 hours per week for the entire quarter. In addition, each student meets regularly with a small group of Phase II classmates and a faculty facilitator to study classroom management, adolescent development, instructional technology, and the psychology of education. Students may not enroll in this course before the first quarter of their junior year.

### **EdSe 3202—Phase III: Human Relations (4 cr)**

Students become involved in the study of pupil-teacher interaction and the development of appropriate approaches in working with culturally, emotionally, and intellectually different students in this course. In addition, students enroll in at least one 3-4 credit special methods course that concentrates on helping develop the strategies for teaching their subject matter to secondary school students. Students normally enroll in Phase III during their junior year.

### **EdSe 3301—Phase IV: Student Teaching (3-17 cr)**

Students in Phase IV spend 1 full quarter in a full-time student teaching (internship) assignment in a junior or senior high school. Students are assigned to one or more cooperating teachers to work and learn as an apprentice teacher. Most students enroll for 14 credits and spend 11 weeks in a full-time assignment. Students may select an extended assignment for additional credits if they desire or are required to gain experience in multiple areas. Students normally complete Phase IV during their senior year.

### **EdSe 3401—Phase V: The Teaching Profession (4 cr)**

Phase V is the “tie it all together” component of the professional sequence. Students analyze the sociology, organization, and politics of the school system; the legal aspects of the profession; professional organization, and the process of finding a teaching position. The course work is largely individualized, with a minimum of organized class sessions. Students may enroll in Phase V concurrently with Phase IV (student teaching) but are encouraged to enroll the quarter following student teaching.

**Other Related Courses**—The State of Minnesota Board of Teaching mandates that those being recommended for secondary teacher licensure must complete a program in drug education, courses in health and physical education, and a program in human relations.

The drug education requirement is satisfied through the completion of two 1-credit courses: Educ 3201—Effects of Narcotics and Alcohol and Educ 3203—Drug Use Information and Education.

The health and physical education requirement is satisfied by completing Hlth 1101—Personal Health and 3 credits in any courses labeled PE.

The human relations requirement is integrated in Phase III and requires no other course work outside the professional sequence.

**Professional Consideration**—Students planning to seek employment as a teacher in Minnesota public schools need to be licensed by the State of Minnesota Board of Teaching. The College of Education recommends to the Board of Teaching that such licensure be granted at the time a student graduates with either a B.A.A. or B.A.S. degree from the college. Specific questions regarding licensure to teach

in other states, completing licensure requirements when pursuing a degree from another college, or similar matters should be directed to the head of the Department of Secondary Education.

Job placement services are available from the UMD Placement and Career Planning Office. Students are strongly urged, but not required, to register with the placement office.

Special endorsements and certification programs in such areas as coaching and driver education are often valuable adjuncts to a student's degree program when seeking employment.

Licensed teachers seeking information regarding in-service educational opportunities should refer to the sections in this bulletin dealing with the master of education degree and the master of arts in education degree.

Students seeking additional information about secondary education programs are invited to contact the head of the department for further assistance.

## **SPECIAL EDUCATION (SpEd)**

These programs are specifically intended for persons who wish to become qualified to work in the special education service areas of mental retardation and learning disabilities. The program is designed to help students develop an array of instructional competencies that permit them to meet the learning needs of children requiring a variety of special educational services.

Students (undergraduate, special, or graduate) must apply for admission to the program. For admission requirements and procedures, consult a program adviser.



## **Specialization in Severe Developmental Disabilities**

This program is intended for those seeking the competencies necessary to work in schools and agencies providing educational services to severely retarded children and adults. Successful completion of the program qualifies students for TMR (trainable mentally retarded) certification.

This certification area is differentiated into two separate age-range concentrations, infant/preschool/school age and school age/adult. The student and program adviser select from four to six supporting courses from other programs to provide a knowledge and skill base appropriate for the concentration.

Certification through this program requires completion of an undergraduate degree in a field such as elementary education, psychology, sociology, speech pathology, home economics, physical education, or industrial education.

### **Program Outline**

- SpEd 5201—Psychology of Exceptionality (3)
- SpEd 5222—Introduction to Mental Retardation (3)
- SpEd 5224—Problems of Mental Deficiency (3)
- SpEd 5226—Instructional Methods (3)
- SpEd 5228—Advanced Topics in Retardation (3)
- SpEd 5302—Data-Based Instruction (3)
- SpEd 5303—Task Analysis and Instruction (3)
- SpEd 5600—Special Area Practicum (9-12)

**Total for Specialization (30-33)**

## **Specialization in Special Learning and Behavior Problems: Learning Disabilities (SLBP:LD)**

This program is intended for those seeking the competencies necessary to work in elementary and secondary schools, primarily as consulting/resource teachers, providing educational services for students whose school problems are related to academic tasks. Persons applying for this program must demonstrate prior completion of, or admission to, a major field in either elementary or secondary education. Course work taken in this program may be applied toward graduate degree requirements for those who have been officially admitted to either the M.A. in education or M.Ed. program.

### **Program Outline**

- SpEd 5300—Special Education Seminar (2-3)
- SpEd 5302—Analysis of Instruction (3)
- SpEd 5303—Diagnostic Instruction (3)
- SpEd 5310—Planning and Implementing Workshops (3)
- SpEd 5311—Programming for Learning Problems (3)
- SpEd 5600—Special Area Practicum (4-6)
- Electives (12-15)

**Total for Specialization (33)**

## **SPECIALIZATION IN READING**

Elementary and secondary school teachers may seek licensure recommendation as an elementary school remedial reading teacher, a secondary school develop-



mental or remedial reading teacher, or a reading consultant. The UMD programs, which have been approved by the Minnesota State Department of Education, follow.

**Required Specialization Courses—Elementary School Remedial Reading (12)**

Educ 5370—Reading Disabilities (3)

Educ 5672—Practicum: Reading Diagnosis (3)

Educ 5673—Practicum: Reading Remediation (3)

SpEd 5371—Clinical Procedures With Children (3)

**Required Prerequisite Courses (9)**

EIEd 3373—Teaching Reading I (3)

EIEd 3374—Teaching Reading II (3)

EIEd 5379—Materials in Reading—Elementary (3)

**Total for Specialization (21)**

To be licensed, the student who has completed the above program must hold a current elementary teaching license and have 2 years of successful elementary school teaching experience.

**Required Specialization Courses—Secondary School Remedial Reading (12)**

Educ 5370—Reading Disabilities (3)

Educ 5672—Practicum: Reading Diagnosis (3)

Educ 5673—Practicum: Reading Remediation (3)

SpEd 5371—Clinical Procedures With Children (3)

**Required Prerequisite Courses (13)**

EIEd 3373—Teaching Reading I (3)

EIEd 3374—Teaching Reading II (3)

EIEd 5379—Materials in Reading—Elementary (3)

EdSe 5215—Reading in Secondary Schools (4)

**Total for Specialization (25)**

To be licensed, the student who has completed the above program must hold a current elementary or secondary teaching license and have 2 years of successful teaching experience at the appropriate level.

**Required Specialization Courses**

**—Secondary School Developmental Reading (12)**

Educ 5370—Reading Disabilities (3)

Educ 5672—Practicum: Reading Diagnosis (3)

Educ 5673—Practicum: Reading Remediation (3)

SpEd 5371—Clinical Procedures With Children (3)

**Required Prerequisite Courses (17)**

EIEd 3373—Teaching Reading I (3)

EIEd 3374—Teaching Reading II (3)

EIEd 5379—Materials in Reading—Elementary (3)

EdSe 5212—Literature for Adolescents (4)

EdSe 5215—Reading in Secondary Schools (4)

**Total for Specialization (29)**

To be licensed, the student who has completed the above program must hold a current elementary or secondary teaching license and have 2 years of successful teaching experience at the appropriate level.

**Required Specialization Courses—Reading Consultant (27)**

Educ 5370—Reading Disabilities (3)

Educ 5672—Practicum: Reading Diagnosis (3)

Educ 5673—Practicum: Reading Remediation (3)

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Educ 5676—Reading Supervision (3)

SpEd 5305—Exceptionality in the Classroom (3)

SpEd 5371—Clinical Procedures With Children (3)

**Electives**—No less than three courses from areas of language arts, educational research in reading or educational diagnosis, mental hygiene, personality, advanced psychological testing, principles and procedures in guidance, special education, and children's and adolescent literature (9)

**Required Prerequisite Courses (13)**

EdSe 5215—Reading in Secondary Schools (4)

EIEd 3373—Teaching Reading I (3)

EIEd 3374—Teaching Reading II (3)

EIEd 5379—Materials in Reading—Elementary (3)

**Total for Specialization (40)**

To be licensed, the student who has completed the above program must hold a current teaching license, have 3 years of teaching experience (1 year as a reading teacher), and hold a master's degree.



## **V. SCHOOL OF FINE ARTS (SFA)**

*Dean: Phillip H. Coffman*  
212 Humanities Building, 726-7261

The School of Fine Arts is comprised of the Departments of Art, Music, and Theatre, and the Tweed Museum of Art. Programs in dance are offered in the Department of Theatre.

The major purpose of the school is to provide educational experiences and quality instruction in understanding, production, and performance of the arts. These educational activities are designed to fit the needs of students seeking general and liberal education goals as well as those planning to prepare for teaching or for a professional life in the arts.

Another significantly related purpose of the school is to promote the general cultural value of the arts by providing the academic community and citizens of the regional community with the opportunity of attending and participating in a variety of arts events.

### **GRADUATE PROGRAMS**

A master of arts degree in studio art is available to students seeking advanced work in any one studio area or in a combination of several studio areas. A master of arts degree in education (art education or music education) is available to students planning advanced work in the teaching of art or music. See the section on the Graduate School for further information.

A master of education degree, which may include a fine arts concentration, is available through the College of Education.

### **UNDERGRADUATE PROGRAMS**

#### **Bachelor of Fine Arts Degree (B.F.A.)**

This degree is designed for students who plan to pursue a program of intensive study to prepare for a professional career in some phase of the arts.

Majors offered for the B.F.A. degree include art, art education, theatre, and theatre education.

#### **REQUIREMENTS FOR THE BACHELOR OF FINE ARTS DEGREE**

1. Completion of 56 hours of credit in liberal education courses as required by the UMD Council on Liberal Education. See the Liberal Education Program section of this bulletin. Must include from category 4: Art 1002, Introduction to Art; Mu 1001, Introduction to Music; and Th 1500, Introduction to Theatre Arts.

2. A minimum 2.00 (C) GPA in all work attempted in residence and overall. Transfer credits must be graded C or above.

3. Completion of an academic major with a minimum 2.50 (C+) GPA in the major field. Departmental sections in this bulletin should be consulted for possible additional or substitute requirements. The completion of the major requirements may call for courses in related fields outside of the major. To earn a major or minor from the School of Fine Arts, students must complete a program approved by the department involved.



4. Completion of elective courses to provide a total of 180 or more credits, as indicated under departmental major requirements. A minimum of 45 residence credits completed in the School of Fine Arts is required for each major. Elective credits other than those required in the major field may be taken from the offerings of any academic unit at UMD.

5. Students must file Degree Requirement forms by the time they have completed 110 credits. A hold will be placed on the registration materials of students not doing so.

6. Compliance with the general regulations governing granting of degrees.

## Bachelor of Music Degree (B.M.)

This degree is designed for students who plan to pursue a program of intensive study to prepare for a professional career in some area of music.

Majors offered for the B.M. degree include music education, performance in three areas—band or orchestral instruments, keyboard, vocal—and theory-composition.

## REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE

1. Completion of 56 hours of credit in liberal education courses as required by the UMD Council on Liberal Education. See the Liberal Education Program section of this bulletin.

2. A minimum 2.00 (C) GPA in all work attempted in residence and overall. Transfer credits must be graded C or above. A minimum 2.50 (C+) GPA in the major field of music.

3. Completion of an academic major in one of three areas: performance, theory-composition, or music education. During the first quarter of residence the student should determine which major he or she plans to pursue. Entry into the performance major is by audition in the student's primary performance area. (Detailed information may be obtained in the music department office.) A minimum of 45 residence credits completed in the School of Fine Arts is required for each major.

4. Completion of elective courses to provide a total of 194 credits. Elective credits other than those required in the major field may be taken from the offerings of any academic unit at UMD.

5. Students must file Degree Requirement forms by the time they have completed 110 credits. A hold will be placed on the registration materials of students not doing so.

6. Compliance with the general regulations governing granting of degrees.

## ART (Art)

*Faculty*—James H. Brutger, M.A., Assistant Professor and Head; Joseph W. Boudreau, M.F.A., Assistant Professor; William G. Boyce, M.Ed., Professor; Leif Brush, M.F.A., Assistant Professor; Alyce B. Coker, M.A., Assistant Professor; Thomas F. Hedin, Ph.D., Assistant Professor; Thomas L. Kerrigan, M.F.A., Associate Professor; Philip K. Meany, M.F.A., Associate Professor; Robin E. Poynor, M.A., Instructor; Rudolph I. Schauer, M.S., Professor; Arthur E. Smith, Ed.D., Professor

The Department of Art offers a broad range of courses in art studio, art history and theory, and art education. Majors or minors may be selected by students interested in liberal education or for planning a career in either teaching or some area of professional art. A minimum of 45 residence credits is required for each major.

Much of the program of the Tweed Museum of Art is related to the interests and activities of the art student. Loan exhibitions and the permanent collection are available for study. All art majors are required to present an exhibition of their own art work in the museum during their senior year.

## MAJOR IN ART FOR THE B.F.A. DEGREE

This major is designed to provide a planned program for students planning an intensive study possibly to prepare for a professional career in a particular area of art. Students may select the general plan or the professional plan. The professional plan is designed to prepare the student for graduate study in art. The following courses are required for both plans for the major in art for the B.F.A. degree:

### CORE REQUIREMENTS

#### LOWER DIVISION PROGRAM

##### Required Major Courses (41)

Art 1002—Introduction to Art (4)

Art 1010—Drawing (3)

Art 1011—Design (3)

Art 1012—3-D Design (3)

Studio areas: Of the following courses, six are required (18)

Art 1100—Painting (3)

Art 1200—Sculpture (3)

Art 1300—Print Processes (3)

Art 1400—Ceramics (3)

Art 1500—Crafts (3)

Art 1510—Weaving and Fibers (3)

Art 1600—Photography (3)

Art 1905—Art Theory (2)

ArtH 1302—Topics in Art History

(or) ArtH 1805—Art and Culture (4)

FA 1101—Survey of the Arts

(or) FA 1102—Survey of the Arts (4)

#### UPPER DIVISION PROGRAM

##### Required Major Courses (21)

Art 3710—Drawing (2)

Art 3711—Drawing (2)

Art 3712—Drawing (2)

Art 3998—Senior Exhibit (1)

Art 5911—Art Seminar (2)

Art history electives (12)

**Total for Core (62)**

### GENERAL PLAN

#### LOWER DIVISION PROGRAM

##### Required Major Courses (41)

Core requirement (41)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (39)**

Core requirement (21)

Art studio (6 cr in each of three areas) (18)

#### **Electives (11)**

Additional art electives from either upper or lower division (11)

#### **Total for Major—General Plan (91)**

A 2.50 GPA in the major field is required for graduation under the general plan.

### **PROFESSIONAL PLAN**

#### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (41)**

Core requirement (41)

#### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (48)**

Core requirement (21)

Art studio (9 cr in each of three areas) (27)

#### **Electives (11)**

Additional art studio electives from either upper or lower division (11)

#### **Total for Major—Professional Plan (100)**

A 2.80 GPA in the major field is required for graduation under the professional plan.

### **MAJOR IN ART EDUCATION FOR THE B.F.A. DEGREE, AND B.A.A. DEGREE (CE)**

These majors are designed for those intending to teach art. Students working for licensure to teach art must complete the B.A.A. degree (College of Education). This licensure is for K-12.

#### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (44)**

Core requirement (41) (See Major in Art for the B.F.A. Degree)

Art 1125—Watercolor Painting (3)

#### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (46)**

Core requirement (21) (See Major in Art for the B.F.A. Degree)

Art 3800—Community Involvement Through Art (1)

Art 3810—Art in Elementary Education (5)

Art 3815—Art in Secondary Education (5)

Studio electives in at least four areas (14)

#### **Total for Major (90)**

The following additional credits are required for the B.A.A. major:

#### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (2)**

EdSe 1201—Phase I: Orientation to Teaching (2)



**Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)

Additional credits in physical education courses (3)

**UPPER DIVISION PROGRAM****Required Major Courses (29)**

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

**Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total Additional Credits for B.A.A. Major (38)****Total for Major for B.A.A. Degree (128)**

A minimum 2.50 GPA is required for the B.F.A. major. See the College of Education section for a discussion of teacher-education programs.

A total of 192 credits is required for both the B.F.A. and B.A.A. degrees.

**MAJOR IN ART FOR THE B.A. DEGREE (CLS)**

This major is designed to provide a planned program of studies in art for the student interested in an emphasis on liberal education.

**LOWER DIVISION PROGRAM****Required Major Courses (32)**

Art 1002—Introduction to Art (4)

Art 1010—Drawing (3)

Art 1011—Design (3)

Art 1012—3-D Design (3)

Studio electives<sup>1</sup> (9)

Art 1905—Art Theory (2)

ArtH 1305—Topics in Art History

(or) ArtH 1805—Art and Culture (4)

FA 1101—Survey of the Arts

(or) FA 1102—Survey of the Arts (4)

**UPPER DIVISION PROGRAM****Required Major Courses (39)**

Studio electives<sup>1</sup> (21)

Art 3710—Drawing (2)

Art 3711—Drawing (2)

Art 3712—Drawing (2)

Art 3998—Senior Exhibit (1)

Art 5911—Art Seminar (2)

Art history electives (9)

**Total for Major (71)**

<sup>1</sup>Studio electives must be selected from the following seven areas: weaving, painting, sculpture, print processes, ceramics, crafts, and photography. Students must take at least one 3-credit course in each area and a minimum of 6 credits in at least three of the areas. Students may take a maximum of 12 credits in any one area.

## **MINOR IN ART FOR THE B.A. DEGREE (CLS)**

This minor is designed to provide a planned program of studies in art for students interested in a liberal education.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (21)**

Art 1002—Introduction to Art (4)  
Art 1010—Drawing (3)  
Art 1011—Design (3)  
Art 1012—3-D Design (3)  
ArtH 1305—Topics in Art History  
(or) ArtH 1805—Art and Culture (4)  
FA 1101—Survey of the Arts  
(or) FA 1102—Survey of the Arts (4)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (18)**

Upper or lower division studio electives (not to exceed 6 cr in any one area) (18)

**Total for Minor (39)**

## **MINOR IN ART HISTORY FOR THE B.A. DEGREE (CLS)**

This minor is designed to provide a planned program of studies in art for students interested in a liberal education with an emphasis in art history.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (12)**

Art 1101—Art Today (4)  
ArtH 1305—Topics in Art History  
(or) ArtH 1805—Art and Culture (4)  
FA 1101—Survey of the Arts  
(or) FA 1102—Survey of the Arts (4)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (18)**

Upper or lower division art history electives (18)

**Total for Minor (30)**

## **MINOR IN TEACHING ART (SECONDARY) FOR THE B.A.A. AND B.A.S. DEGREES (CE)**

This minor is designed to provide a planned program of studies in art for prospective secondary school teachers. Each student must have an art department adviser.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (21)**

Art 1002—Introduction to Art (4)  
Art 1010—Drawing (3)  
Art 1011—Design (3)  
Art 1012—3-D Design (3)  
ArtH 1305—Topics in Art History

(or) Arth 1805—Art and Culture (4)  
FA 1101—Survey of the Arts  
(or) FA 1102—Survey of the Arts (4)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (19)**

Art 3815—Art in Secondary Education (5)

Upper or lower division studio electives from painting, print processes, or drawing (8)  
Upper or lower division studio electives from ceramics, crafts, photography, or weaving (6)

**Total for Minor (40)**

Student teaching in art is required as part of the EdSe 3301 student teaching assignment.

### **MINOR IN ART (ELEMENTARY) FOR THE B.A.S. DEGREE (CE)**

This minor is designed to provide a planned program of studies in art for prospective elementary school teachers.

#### **LOWER DIVISION PROGRAM**

##### **Required Minor Courses (21)**

Art 1002—Introduction to Art (4)

Art 1010—Drawing (3)

Art 1011—Design (3)

Art 1012—3-D Design (3)

Arth 1305—Topics in Art History

(or) Arth 1805—Art and Culture (4)

FA 1101—Survey of the Arts

(or) FA 1102—Survey of the Arts (4)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (14)**

Art 3810—Art in Elementary Education (5)

Upper or lower division studio electives (three areas) (9)

**Total for Minor (35)**

### **DANCE (DN)**

*Faculty*—Sharon Friedler (Th)

For a description of the dance program see the listing for Theatre in this section of the bulletin.

### **FINE ARTS (FA)**

Courses in the fine arts are intended to acquaint students with the interdisciplinary relationships of the areas of art, dance, music, theatre, and the humanities.



## MUSIC (Mu)

*Faculty*—Ann C. Anderson, M.M., Associate Professor; Phillip H. Coffman, Ph.D., Associate Professor and Dean; Allen L. Downs, M.M., Associate Professor; Ronald R. Gauger, D.M.A., Associate Professor; R. Dale Miller, Ph.D., Professor Emeritus; James R. Murphy, M.M.E., Professor; Vernon H. Opheim, D.M.A., Associate Professor; Donna W. Pegors, B. M., Associate Professor; E. Terrence Rust, M.F.A., Assistant Professor; Jean P. Swanson, Ph.D., Associate Professor; Marion Valasek, D.M.A., Assistant Professor; E. Ruth van Appledorn, M.M., Professor; Thomas J. Wegren, Ph.D., Assistant Professor; Robert E. Williams, Ed.D., Associate Professor

The Department of Music serves all students who wish to participate in music programs and activities. The department offers curricula leading to the bachelor of music degree and the bachelor of arts degree. Degree programs offered include professional training and teacher education.

Students pursuing a performance major for the B.M. degree must satisfy audition requirements. Auditions are held early in the first quarter of registration in the program.

Piano proficiency is required of all music majors. Non-piano majors with insufficient piano background should begin immediately with Mu 1424, Piano Class. This course is designed to assist the student in developing piano proficiency. Details concerning requirements for piano proficiency may be obtained from the Department of Music office.

Applied music in the principal field is required of music majors. Quarterly juries are held on the student's performance on the principal instrument. Generally, students are advised not to enroll concurrently in more than two phases of applied and/or class instruction. Recital attendance is required of all music majors when enrolled in applied instruction. For purposes of determining applied music fees, students are considered music majors if they are enrolled in the core course work and in a major ensemble if required for the degree program.

All applied instruction, major and minor ensemble, Opera Workshop, and Recital courses may be repeated for credit. Major ensembles include the University Singers, University Choral Society, Concert Band, Varsity Band, and Orchestra.

Students in ensembles are required to participate in all performances on or off campus and to attend any necessary extra rehearsals. On occasion, some expenses for extended or foreign tours are incurred by students.

Students majoring in performance or music education are expected to progress to the level of advanced standing in applied music by the end of their second year. Students not qualified for advanced standing in performance by their junior year may need additional time to complete the upper division credits. The B.M. major in performance requires two lessons each week for 4 credits. A total of 48 credits in lessons is required, with 24 at the upper division level. The B.M. major in music education requires 12 credits in the principal applied area, with at least 6 credits in the upper division.

The programs of the department have been accredited by the National Association of Schools of Music since 1942. Requirements for these programs, as detailed in this bulletin, have been established in accordance with the published regulations of this association.

## MAJORS FOR THE B.M. DEGREE

The bachelor of music degree is the initial professional collegiate degree in music. Students may select a major in this degree program in performance (three areas), theory-composition, or music education.

The following courses are required for all majors in the B.M. degree program:

### **CORE REQUIREMENTS**

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (30)**

Mu 0000 (each qtr)—Recital Attendance (0) (to be taken concurrently with applied instruction)

Mu 1114-1115-1116—Basic Music Theory (12)

Mu 1124-1125-1126—Intermediate Theory (12)

Mu 1221, 1222, 1223—Musical Styles (6)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (13)**

Mu 0000 (each qtr)—Recital Attendance (0) (to be taken concurrently with applied instruction)

Mu 3107—The Smaller Forms of Music (2)

Mu 3108—The Larger Forms of Music (2)

Mu 3201-3202-3203—History of Music (9)

**Total for Core (43)**

### **MAJOR IN PERFORMANCE (VOCAL) FOR THE B.M. DEGREE**

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (69)**

Core requirement (30)

Applied instruction (24)

Major choral ensemble (each qtr) (6)

Applied instruction in piano (6)

Mu 1418—Diction (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (58)**

Core requirement (13)

Applied instruction (24)

Major choral ensemble (each qtr) (6)

Chamber ensembles (3)

Mu 3112—Orchestration

(or) Mu 3118—Contrapuntal Techniques

(or) Mu 3124—Composition I

(or) Mu 3134—Choral Arranging (3)

Mu 3224—Topics in Music (vocal literature) (3)

Mu 3300—Recital (1)

Mu 3597-3598-3599—Conducting (3)

Mu 3661—Applied Music Teaching (2)

**Total for Major (127)**

A foreign language is strongly recommended.

## **MAJOR IN PERFORMANCE (KEYBOARD) FOR THE B.M. DEGREE**

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (62)**

Core requirement (30)

Applied instruction (24)

Major ensembles (3)

Music electives (5)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (65)**

Core requirement (13)

Applied instruction (24)

Mu 3112—Orchestration (3)

Mu 3118—Contrapuntal Techniques (3)

Mu 3224—Topics in Music (6) (to include 1 qtr keyboard literature)

Mu 3300—Recital (1)

Mu 3327—Art of Accompanying (3)

Mu 3661—Applied Music Teaching (2)

Major ensembles (3)

Music electives (7)

**Total for Major (127)**

## **MAJOR IN PERFORMANCE (BAND OR ORCHESTRAL INSTRUMENTS) FOR THE B.M. DEGREE**

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (66)**

Core requirement (30)

Applied instruction, principal instrument (24)

Applied instruction, secondary field (4)

Band or orchestra (1 cr each qtr) (6)

Small ensembles and/or chamber music (2)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (61)**

Core requirement (13)

Applied instruction, principal instrument (24)

Band or orchestra (1 cr each qtr) (6)

Small ensembles and/or chamber music (3)

Mu 3112—Orchestration

(or) Mu 3128—Bandstration (3)

Mu 3224—Topics in Music (3)

Mu 3300—Recital (1)

Mu 3597-3598-3599—Conducting (3)

Mu 3661—Applied Music Teaching (2)

Mu 5990—Independent Study (in solo literature) (3)

**Total for Major (127)**



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## **MAJOR IN THEORY-COMPOSITION FOR THE B.M. DEGREE**

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (70)**

Core requirement (30)  
Mu 1321—Piano (2 cr per qtr) (12)  
Applied instruction (1 cr per qtr) (12)  
Major ensembles (6)  
Music electives (10)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (57)**

Core requirement (13)  
Major ensembles (6)  
Mu 3111—Analysis: The Twentieth Century (3)  
Mu 3112—Orchestration (3)  
Mu 3118—Contrapuntal Techniques (3)  
Mu 3124—Composition I (3)  
Mu 3140—Electronic Music (3)  
Mu 3224—Topics in Music (3)  
Mu 3597—Conducting (1)  
Mu 5124—Composition II (3)  
Mu 5990—Independent Study (4) (a minimum of 1 cr for senior project in theory or composition)  
Music electives (12)

**Total for Major (127)**

## **MAJOR IN MUSIC EDUCATION FOR THE B.M. DEGREE, AND B.A.A. DEGREE (CE)**

These majors are designed for those planning to teach music. Students working for licensure to teach music must obtain the B.A.A. degree (College of Education). For new licensing requirements, effective fall 1978, see the Department of Music office.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (53)**

Core requirement (30)  
Applied instruction, principal field(s) (6)  
Class lessons (7)  
One cr each in Mu 1451, Strings; Mu 1461, Woodwinds; Mu 1471, Brass; Mu 1483, Percussion; Mu 1411, Voice (those whose principal field is voice take Mu 1418, Diction); plus 2 additional cr in one or more of these class areas  
Major ensembles (6)  
Additional work from the areas of class lessons, applied instruction, major ensembles, minor ensembles (4)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (42)**

Core requirement (13)  
Applied instruction, principal field(s) (6)  
Major ensembles (6)  
Mu 3112—Orchestration  
(or) Mu 3118—Contrapuntal Techniques

(or) Mu 3124—Composition I  
(or) Mu 3128—Bandstraton  
(or) Mu 3134—Choral Arranging (3)  
Mu 3597-3598-3599—Conducting (3)  
Mu 3621—Elementary School Music Teaching (3)  
Additional work from major ensembles, minor ensembles, Recital, The Art of Accompanying, Opera Workshop (5)  
One course numbered 5000 or above (excluding the 5300 and 5500 series) (3)  
**Total for Major for B.M. Degree (95)**

The following additional credits are required for the B.A.A. major:

#### **LOWER DIVISION PROGRAM**

##### **Required Major Course (2)**

EdSe 1201—Phase I: Orientation to Teaching (2)

##### **Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)

Additional credits in physical education courses (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (32)**

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

Mu 3605—Instrumental Music in the Schools

(or) Mu 3655—Vocal Music in the Schools (3)

##### **Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total Additional Credits for B.A.A. Major (41)**

**Total for Major for B.A.A. Degree (136)**

### **MAJOR IN MUSIC FOR THE B.A. DEGREE (CLS)**

This program is designed to offer the study of music within a liberal arts curriculum.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (39)**

Mu 0000—Recital Attendance (0) (to be taken concurrently with applied instruction)

Applied instruction (6 qtrs) (6)

Mu 1114-1115-1116—Basic Music Theory (12)

Mu 1124-1125-1126—Intermediate Theory (12)

Mu 1221, 1222, 1223—Musical Styles (6)

Major ensembles (3 qtrs) (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (26)**

Mu 3201-3202-3203—History of Music (9)

Mu 3224—Topics in Music (6)

Major ensembles (3 qtrs) (3)

Additional credits from form, advanced history, composition, or conducting (8)

**Total for Major (65)**

## **MINOR IN MUSIC FOR THE B.A. DEGREE (CLS)**

This minor is designed to provide a planned program of studies in music for students interested in a liberal education.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (30)**

Applied instruction (6)

Mu 0000—Recital Attendance (0) (to be taken concurrently with applied instruction)

Mu 1114-1115-1116—Basic Music Theory (12)

Mu 1221, 1222, 1223—Musical Styles (6)

Major ensembles (6)

### **UPPER DIVISION PROGRAM**

**Required Minor Course (3)**

Mu 3224—Topics in Music (3)

**Total for Minor (33)**

## **MINOR IN TEACHING MUSIC (SECONDARY) FOR THE B.A.A. AND B.A.S. DEGREES (CE)**

This minor is designed for prospective secondary school teachers whose major concentration is in an area other than music.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (31)**

Applied instruction (7)

Mu 0000—Recital Attendance (0) (to be taken concurrently with applied instruction)

Mu 1114-1115-1116—Basic Music Theory (12)

Mu 1221, 1222, 1223—Musical Styles (6)

Major ensembles (6)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (2)**

Mu 3597-3598—Conducting (2)

**Required Supporting Course (3)**

Mu 3605—Instrumental Music in the Schools

(or) Mu 3655—Vocal Music in the Schools (3)

**Total for Minor (36)**

## **MINOR IN MUSIC (ELEMENTARY) FOR THE B.A.S. DEGREE (CE)**

This minor is designed to provide a planned program of studies in music for prospective elementary school teachers.



## **LOWER DIVISION PROGRAM**

### **Required Minor Courses (30)**

Applied instruction—If piano exemption examination is passed, the candidate fulfills 3 credits in applied voice and the remaining 3 credits in applied elective (6)

Mu 0000—Recital Attendance (0) (to be taken concurrently with applied instruction)

Mu 1114-1115-1116—Basic Music Theory (12)

Mu 1221, 1222, 1223—Musical Styles (6)

Mu 1511—University Singers

(or) Mu 1512—University Choral Society (6)

## **UPPER DIVISION PROGRAM**

### **Required Minor Course (3)**

Mu 3621—Elementary School Music Teaching (3)

**Total for Minor (30)**

## **THEATRE (Th)**

*Faculty*—Richard C. Graves, Ph.D., Associate Professor and Head; Richard W. Durst, M.F.A., Associate Professor; Sharon Friedler, M.F.A., Assistant Professor; Roger H. Schultz, M.S.Ed., Assistant Professor

The Department of Theatre, housed in the Marshall Performing Arts Center, serves two broad needs of the University. First, it provides academic training in the arts of the theatre: dance; acting; directing; scenic, lighting, and costume design; critical evaluation; and management. Second, the cocurricular producing arm of the department, the University Theatre, provides practical experience for University students while enhancing the cultural life of the University and the communities it serves.

The University Summer Theatre offers a concentrated summer stock experience to students and numerous playgoing opportunities to audiences. The dance program offers students academic, technical, and creative training in the development of performance, choreographic, and teaching skills. All theatre and dance productions have open auditions and utilize theatre majors and interested nonmajors.

## **MAJOR IN THEATRE FOR THE B.F.A. DEGREE**

This major is designed for students seeking professional training or desiring an intensive program of theatre studies.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (26)**

Th 1110—Acting: Fundamentals (4)

Th 1330—Stagecraft (4)

Th 1440—Costume Design I (4)

Th 1500—Introduction to Theatre Arts (4)

Th 1600—Play Production (4)

Th 1111—Acting: Characterization

(or) Th 1112—Acting: Improvisation (4)

A total of 2 credits repeating the following course:

Th 1660—Theatre Arts and Crafts Laboratory (1)

## UPPER DIVISION PROGRAM

### Required Major Courses (44)

- Th 3221—Stage Direction I (4)
- Th 3551—History of Theatre I (4)
- Th 3552—History of Theatre II (4)
- Th 3553—History of Theatre III (4)
- Th 3555—Contemporary Theatre (4)
- Th 3661—Production Management (2)

A total of 2 credits repeating the following course:

- Th 3660—Theatre Arts and Crafts Laboratory (1)

At least 20 additional credits of Theatre (Th) courses and/or courses from the following in dance:

- DN 3201—Advance Modern Dance Technique (3)
- DN 3211—Advanced Jazz Dance Technique (3)
- DN 3321—Advanced Dance Repertory Theatre (2)
- DN 3401—Dance Composition I (3)
- DN 3402—Dance Composition II (3)
- DN 3405—Special Problems in Dance Composition (3)
- DN 3411—Lecture-Demonstration in Dance (2)
- DN 3511—Dance History I: Primitive to Romantic (3)
- DN 3521—Dance History II: Romantic to Present (3)

These electives must be approved by the department.

**Total for Major (70)**

## MAJOR IN THEATRE EDUCATION FOR THE B.F.A. DEGREE AND B.A.A. DEGREE (CE)

This major is designed to prepare theatre teachers and directors for secondary schools.

## LOWER DIVISION PROGRAM (29)

### Required Major Courses

- Spch 1302—Mass Communication and Society (3)
- Th 1110—Acting: Fundamentals (4)
- Th 1330—Stagecraft (4)
- Th 1440—Costume Design I (4)
- Th 1500—Introduction to Theatre Arts (4)
- Th 1600—Play Production (4)
- Th 1111—Acting: Characterization
- (or) Th 1112—Acting: Improvisation (4)

A total of 2 credits repeating the following course:

- Th 1660—Theatre Arts and Crafts Laboratory (1)

## UPPER DIVISION PROGRAM

### Required Major Courses (45)

- Engl 5711—Oral Interpretation of Literature (4)
- SpE 3800—Problems in Speech Education (4)
- Th 3221—Stage Direction I (4)
- Th 3331—Scenic Design I (4)
- Th 3337—Stage Lighting (4)
- Th 3551—History of Theatre I (4)
- Th 3552—History of Theatre II (4)

Th 3553—History of Theatre III (4)

Th 3555—Contemporary Theatre (4)

Th 3900—Intern Teaching in Theatre (3)

A total of 2 credits repeating the following course:

Th 3660—Theatre Arts and Crafts Laboratory (1)

A total of 4 credits repeating the following course:

Th 3661—Participation in Theatre (2)

**Total for Major for B.F.A. Degree (74)**

Courses in English and speech are recommended.

The following additional credits are required for the B.A.A. major:

### **LOWER DIVISION PROGRAM**

**Required Major Course (2)**

EdSe 1201—Phase I: Orientation to Teaching (2)

**Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)

Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

**Required Major Courses (18-32)**

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3301—Phase IV: Student Teaching (3-17)

EdSe 3401—Phase V: The Teaching Profession (4)

**Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total Additional Credits for B.A.A. Major (21-49)**

**Total for Major for both B.F.A. Degree and B.A.A. Degree (101-115)**

A minimum 2.50 GPA is required for both of these two majors. See the College of Education section for a discussion of teacher-education programs.

## **MAJOR IN THEATRE FOR THE B.A. DEGREE (CLS)**

This major provides a liberal arts approach to the arts of the theatre.

### **LOWER DIVISION PROGRAM**

**Required Major Courses (23)**

Th 1110—Acting: Fundamentals (4)

Th 1330—Stagecraft (4)

Th 1500—Introduction to Theatre Arts (4)

Th 1550—American Theatre History (4)

Th 1600—Play Production (4)

A total of 3 credits repeating the following course:

Th 1660—Theatre Arts and Crafts Laboratory (1)

### **UPPER DIVISION PROGRAM**

**Required Major Courses (22)**

Th 3221—Stage Direction I (4)



Any two of the following courses:

- Th 3551—History of the Theatre I (4)
- Th 3552—History of the Theatre II (4)
- Th 3553—History of the Theatre III (4)
- Th 3555—Contemporary Theatre (4)

A total of 3 credits repeating the following course:

- Th 3660—Theatre Arts and Crafts Laboratory (1)

A total of 4 credits repeating the following course:

- Th 3661—Production Management (2)

An elective upper division theatre course (3 cr or more)

**Total for Major (45)**

## **MAJOR IN TEACHING SPEECH-COMMUNICATION/THEATRE FOR THE B.A.A. DEGREE (CE)**

This combined major is designed to prepare teachers of both speech and theatre for secondary schools.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (34)**

- EdSe 1201—Phase I: Orientation to Teaching (2)
- Spch 1101—Rhetoric of Our Times (3)
- Spch 1111—Beginning Public Speaking (3)
- Spch 1121—Advanced Public Speaking (3)
- Spch 1202—Interpersonal Communication (3)
- Spch 1302—Mass Communication and Society (3)
- Th 1110—Acting: Fundamentals (4)
- Th 1330—Stagecraft (4)
- Th 1500—Introduction to Theatre Arts (4)
- Th 1600—Play Production (4)
- Th 1660—Theatre Arts and Crafts Laboratory (1)

#### **Required Supporting Courses (5)**

- Hlth 1101—Personal Health (2)
- Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (69-83)**

- EdSe 3101—Phase II: Learning Theory Applications (7)
- EdSe 3202—Phase III: Human Relations (4)
- EdSe 3301—Phase IV: Student Teaching (3-17)
- EdSe 3401—Phase V: The Teaching Profession (4)
- Engl 5711—Oral Interpretation of Literature (4)
- Spch 3101—Persuasion (3)
- Spch 3111—Argumentation (3)
- Spch 3112—Debate (3)
- Spch 3121—Discussion and Group Methods (3)
- Spch 5152—Directing the Forensics Program (3)
- SpE 3800—Problems in Speech Education (4)
- SpE 3900—Intern Teaching in Speech  
(or) Th 3900—Intern Teaching in Theatre (3)
- Th 3221—Stage Direction I (4)
- Th 3331—Scenic Design I (4)
- Th 3551—History of Theatre I (4)

Th 3552—History of Theatre II (4)  
Th 3553—History of Theatre III (4)  
Th 3555—Contemporary Theatre (4)  
Th 3660—Theatre Arts and Crafts Laboratory (1)

**Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)

**Total for B.A.A. Major (110-124)**

Students are advised to take SpE 3900 or Th 3900 prior to taking EdSe 3301.

## **MINOR IN THEATRE FOR THE B.A. DEGREE (CLS)**

This minor provides a liberal arts approach to the study of the arts of the theatre.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (17)**

Th 1110—Acting: Fundamentals (4)  
Th 1330—Stagecraft (4)  
Th 1500—Introduction to Theatre Arts (4)  
Th 1600—Play Production (4)  
Th 1660—Theatre Arts and Crafts Laboratory (1)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (16)**

Th 3221—Stage Direction I (4)  
Th 3661—Production Management (2)  
A total of 2 credits repeating the following course:  
Th 3660—Theatre Arts and Crafts Laboratory (1)

Any two of the following courses:

Th 3551—History of Theatre I (4)  
Th 3552—History of Theatre II (4)  
Th 3553—History of Theatre III (4)  
Th 3555—Contemporary Theatre (4)

**Total for Minor (33)**

## VI. COLLEGE OF LETTERS AND SCIENCE (CLS)

*Dean:* Dr. George R. Rapp, Jr.  
108 Mathematics-Geology, 726-7201

*Associate Dean:* Sabra S. Anderson  
315 Mathematics-Geology Building, 726-8272

*Assistant Dean for Student Affairs:* Robert H. Evans  
102 Mathematics-Geology Building, 726-7585

The College of Letters and Science has a fourfold mission: to provide an environment conducive to a broad liberal education, to help each student develop a foundation for a career by learning the substance and methods of an academic discipline, to foster significant scholarly research, and to serve the well-being of the community, state, and region.

A central purpose of the college is to offer a liberal education. Faculty members of the college believe that lifelong habits of critical thinking, imagination, curiosity, and healthy doubt—tempered by wisdom, tolerance, and a sense of humor—are attributes of the truly educated individual. The college provides opportunities for study of a variety of civilizations, social and political systems, intellectual and artistic achievements, scientific endeavors, and systems of communication. Because of its unique nature and size and setting, the college provides an attractive environment for exploring the varied relationships among disciplines, institutions, peoples, and ideas. Through the varied learning experiences provided, students can develop a capacity to respond with informed intelligence to an ever-changing world.

The second major mission of the college is to provide the opportunity for each student to develop competence in a particular field of knowledge by learning its principles, history, and perspectives, by mastering the methods by which it operates; and by acquiring much of its accumulated knowledge. Concentrated study in a selected field is essential to develop an individual's intellectual capacity and to establish a solid foundation for a career or further education. To this end, the college faculty is organized into academic departments that operate programs of major and minor concentration leading to baccalaureate degrees. Several of these departments also offer graduate programs at the master's level to provide more intensive study in their disciplines as well as to enrich further their undergraduate programs. The departments of the college cooperate with the College of Education in providing curricula for the training of teachers which lead to degrees offered by the College of Education.

In both of these missions, liberal education and concentrated study, one of the college's fundamental responsibilities is to help each student pursue personal interests and achieve individual goals. To do so, the college maintains flexible curricular requirements and offers interdisciplinary programs, thus allowing each student a genuine measure of choice.

The third basic mission is the advancement of knowledge through the scholarly research and other creative activity of the college's faculty and students. Scholarly research in its own right constitutes a vital part of the collegiate mission. The discipline and results derived from such activities are integral components of excellence in the classroom, provide students with inspiration for continuing intellectual enrichment, and are necessary to maintain the vitality of the institution.

Finally, the college has a mission to serve the interests and well-being of the community, region, and world. To fulfill this responsibility, the college provides liberal education opportunities for students in other University units and for the community at large, by offering special courses, counsel, and facilities to groups and individuals in the area, and by the research and publications of the faculty and



students. Above all, the college serves society through its graduates; only by sending broadly educated, thoroughly trained men and women into the community can this service mission be truly fulfilled.

## **GRADUATION WITH HONORS**

Baccalaureate degree candidates who have done outstanding work may be awarded special honors upon completion of the senior year, through graduation with honors, conferral of departmental honors, or both. Departmental honors are conferred on those graduates who have successfully fulfilled the additional requirements of a special honors program in the department of the major field. For particulars, see the statements in this bulletin in the sections devoted to the Departments of Chemistry, English, History, and Philosophy.

Additional information regarding collegiate graduation honors policy is available through the Office of the Dean, 108 Mathematics-Geology Building.

## **ACADEMIC PROGRAMS**

### **Subbaccalaureate Degree Programs**

**Associate in Arts Degree (A.A.)**—This is a 2-year terminal degree program centered on a broad liberal education base. The A.A. degree in secretarial science requires a vocational concentration in addition to the liberal arts requirements. See Major in Secretarial Sciences in the Business, Office and Economic Education section of this bulletin. The following are requirements for the associate in arts degree:

1. Completion of a total of 90 or more credits (96 or more for the secretarial science program).
2. Forty-five credits must be earned at UMD, and 30 of the last 45 credits earned prior to graduation must be awarded by UMD.
3. A minimum 2.00 (C) GPA in all work attempted in residence with a successful completion (with grade of A, B, C, D, or P) of 75 percent of all work attempted, and a minimum 2.00 (C) GPA overall (including transfer credits).
4. Students must take English 1106 and 1107 or be exempted. See Freshman Composition in section II of this bulletin.
5. Completion of 48 credits in approved liberal education courses distributed in the four areas of knowledge. See Liberal Education Program in section II of this bulletin.
6. Students must comply with the general regulations governing the granting of degrees.

**Associate in Science Degree in Dental Hygiene (A.S.)**— The dental hygiene program offers 2 years of dental auxiliary training leading to an associate in science degree in dental hygiene. The program is 5 quarters and 1 summer term (5 weeks) in length. Upon successful completion of all curricular requirements, the graduate is qualified to take the national and regional board examinations necessary for licensure to practice.

## **Baccalaureate Degree Programs**

The College of Letters and Science offers both the bachelor of science and the bachelor of arts degrees. The bachelor of arts degree is the traditional liberal arts degree, while the bachelor of science involves a strong technical or professional component within the major area.

### **MAJORS FOR THE BACHELOR OF ARTS DEGREE (B.A.)**

Art (SFA)	Music (SFA)
Biology	Philosophy
Chemistry	Physics
Earth Science	Political Science
Economics (SBE)	Psychology (CE)
English	Social Science
French	Sociology-Anthropology
Geography	Spanish
German	Speech-Communication
History	Theatre (SFA)
Interdisciplinary Studies	Urban Studies
Mathematics	

### **MAJORS FOR THE BACHELOR OF SCIENCE DEGREE (B.S.)**

Biology	Geology
Chemistry	Mathematics
Economics (SBE)	Physics

### **MINORS FOR THE BACHELOR OF ARTS DEGREE (B.A.)**

Accounting (SBE)	History
Aerospace Studies	Home Economics (CE)
American Indian Studies	Humanities
Anthropology	Linguistics
Art (SFA)	Mathematics
Art History (SFA)	Music (SFA)
Biology	Philosophy
Business Administration (SBE)	Physics
Chemistry	Political Science
Communications	Psychology (CE)
Economics (SBE)	Science
English	Sociology
English (With Emphasis on Writing)	Spanish
French	Speech-Communication
Geography	Theatre (SFA)
Geology	
German	

### **MINORS FOR THE BACHELOR OF SCIENCE DEGREE (B.S.)**

American Indian Studies	History
Anthropology	Mathematics
Biology	Philosophy
Chemistry	Physics
Communications	Political Science
Geography	Science
Geology	Sociology

## **REQUIREMENTS FOR THE BACHELOR OF ARTS AND BACHELOR OF SCIENCE DEGREES**

1. Completion of a total of 180 or more credits. Students seeking two degrees must fulfill the requirements for majors for both degrees and complete a total of 45 residence credits beyond those required for the first degree; i.e., a total of 225 credits or more.

2. At least 45 credits must be earned at UMD.

3. Of the last 45 credits earned prior to graduation, 30 credits must be completed at UMD.

4. A minimum 2.00 (C) GPA in all work attempted in residence with a successful completion (with a grade of A, B, C, D, or P) of 75 percent of all work attempted, and a minimum 2.00 (C) GPA overall (including transfer credits).

5. Students must take English 1106 and 1107 or be exempted. See Freshman Composition in section II of this bulletin.

6. Completion of 48 credits in approved liberal education courses distributed in the four areas of knowledge. See Liberal Education Program in Section II of this bulletin.

7. Completion of an academic major for the B.A. or B.S. degree. To earn a major or minor from CLS, a student must be accepted and have a program of study approved by the department involved. The completion of a major or minor may require courses in related fields outside of the major or minor subject. The student must maintain a minimum 2.00 (C) GPA in all courses taken in each major and minor field. This average applies not only to courses taken at UMD calculated separately but also to all courses taken, including those taken elsewhere in each field. B.A. and B.S. majors must complete 27 credits in upper division courses.

8. Completion of 30 upper division credits (in courses numbered 3000 or above) outside the major. Upper division credits that are used to satisfy liberal education distribution requirements may not also be used to satisfy this requirement. A student may elect to complete a second major or minor. Any upper division credits included for the second major or minor may be counted toward the 30 upper division credits required outside the first major, provided that the credits are not also counted for the first major. See the urban studies major and interdisciplinary studies major for exceptions to this policy.

9. Upper division papers must be filed before the student has completed 105 credits.

10. Students must comply with the general regulations governing the granting of degrees.

## **ACADEMIC PROBATION POLICY**

In the College of Letters and Science there are three academic standing levels: good standing, academic probation, and academic dismissal.

A student is considered to be in good academic standing unless he or she fails to earn a cumulative UMD grade point average of 2.00 or fails to achieve a satisfactory cumulative completion ratio of 75 percent in all credits attempted. If placed on probation, a student must make up all academic deficiencies during the next 2 quarters in which she or he is registered to avoid dismissal. A person on academic probation may return to good standing by bringing his or her cumulative UMD GPA to at least 2.00 and satisfactory completion ratio to at least 75 percent.



## SUMMARY OF DEGREE REQUIREMENTS

(See pages 128-130 for details)

Type of Requirement	A.S.		A.A.		B.A.	B.S.
	Dental Hygiene	Liberal Arts	Secretarial Science		All Majors	All Majors
Total Credits UMD Credits	90 45	90 45	112 45		180 45	180 45
Of the last 45 credits earned prior to graduation, 30 credits must be awarded by UMD.						
Quality Standards	A minimum 2.00 (C) GPA in all work attempted in residency with successful completion (with a grade of A, B, C, D, or P) of 75 percent of all work attempted in residence, and a minimum 2.00 (C) GPA overall (including transfer credits).					
English Comp.	Engl 1106 and Engl 1107 or exemption.					
Liberal Education	Forty-eight credits in liberal education courses distributed in the four areas of knowledge.					
P-N Credits	Thirty of the 90 credits may be taken on P-N. No more than 15 credits (a maximum of 5 credits per category) of P-N graded courses may be applied to fulfill liberal education requirements.					
Major	Completion of program approved by department with a minimum 2.00 (C) GPA.					
Upper Division	Completion of 30 upper division credits outside the major. These credits may not be used to satisfy liberal education requirements.					
Upper Division Papers	Upper division papers must be filed before completing 105 credits.					

No credit load restrictions are imposed on any student who is placed on academic probation; however, a student should consider the possibility that a higher GPA and a completion ratio might more easily be attained by carrying a lighter load.

Students who have been academically dismissed, have dropped out of school with a grade point average of less than 2.00 and/or a cumulative completion ratio of less than 75 percent, or are seeking to transfer to the College of Letters and Science with a grade point average of less than 2.00 and/or a cumulative completion ratio of less than 75 percent must petition the Academic Standards Committee for readmission. In order to be considered by the committee, petitions for readmission for fall quarter must be submitted at least 14 days before the first day of fall quarter classes, for winter quarter by the last day of fall quarter classes, and for spring quarter by the last day of winter quarter classes.

## STUDENT AFFAIRS OFFICE

Information and advice on such academic matters as scholastic standing, admissions, change of major, and grievance and appeal procedures may be obtained in the Student Affairs Office, 102 Mathematics-Geology Building. Forms and petitions are also available in this office.

## PREPROFESSIONAL PROGRAMS

The College of Letters and Science offers courses and special advising services for the student who plans to enter a professional school. In addition to preprofessional course requirements, a broad program is available to the student who desires to build a solid background in science, literature, language, social sciences, and the arts.

In certain cases, a student may complete the preprofessional requirements in 2 years. The student is encouraged, however, to avoid narrow specialization during her or his undergraduate years.

The basic programs listed below are described in alphabetical order on the following pages. Variations in a curriculum may be arranged upon agreement between the student, the preprofessional adviser, and the office of admissions of the professional school in which the student is interested.

Pre-Agriculture	Pre-Medical Technology
Pre-Agricultural Education	Pre-Medicine
Pre-Dentistry	Pre-Nursing
Pre-Engineering	Pre-Occupational Therapy/ Pre-Physical Therapy
Pre-Fishery and Wildlife Management	Pre-Pharmacy
Pre-Forestry	Pre-Theology
Pre-Journalism	Pre-Veterinary Medicine
Pre-Law	

### Pre-Agriculture

*Adviser*—J. Carlson (Biol)

This curriculum provides 2 years of study fulfilling the basic requirements in agricultural science. Students should consult the bulletin for the College of Agriculture on the St. Paul campus for modifications of this program if they plan to enter other curricula in agriculture.

Biol 1109-1110—General Biology (10)  
Biol 5403—General Microbiology (5)  
Chem 1103-1104—General Chemistry (10)  
Chem 1500—Organic Chemistry (5)  
Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)  
Engl 1106-1107—Freshman Composition (8)  
Math 1185—Pre-Calculus Analysis (5)  
Soc 1100—Problems of American Society (5)  
Spch 1101—Rhetoric of Our Times (3)  
Spch 1111—Beginning Public Speaking (3)  
Electives (18)

Electives may be chosen to apply to the social science requirement (15 credits) with a minimum of 5 credits in each of the two fields selected from category 3, Man and Society; or to apply to the humanities requirement (8 credits) of courses selected from category 4, Artistic Expression. Studio courses in art or music may not be applied to this curriculum. See Liberal Education Requirements in section II of this bulletin.

Other recommended electives: Biol 3153, 3773, 5461.

## **Pre-Agricultural Education**

*Adviser*—Pearson (Soc)

This curriculum provides 4 quarters of study fulfilling basic requirements for students planning to major in agricultural education. A student must transfer to the College of Agriculture on the St. Paul campus at the end of the first year of work in order to take the required courses in technical agriculture and professional agricultural education.

### **Freshman Year**

Biol 1109-1110—General Biology (10)  
Chem 1103-1104—General Chemistry (10)  
Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)  
Educ 3201—Effects of Narcotics (1)  
Educ 3203—Drug Use Information (1)  
Engl 1106-1107—Freshman Composition (8)  
Hlth 3101—Personal Community Health (3)  
Math 1110—College Algebra (5)  
Psy 1003—General Psychology (5)  
Soc 1100—Problems of American Society (5)  
Spch 1101—Rhetoric of Our Times (3)  
Spch 1111—Beginning Public Speaking (3)

Electives may be chosen to apply to the humanities requirement (8 credits) from the areas of art, literature, music, philosophy, or theatre arts. Studio courses in art and music, chorus, and technical courses may not be applied to this curriculum.

Electives may be chosen to apply to the social science requirement (15 credits) from the fields of agricultural economics, anthropology, economics, geography, history, political science, psychology, and sociology. Technical courses such as accounting or statistics, may not be applied toward this requirement. Courses must be selected from at least two of the above fields, with a minimum of 5 credits in each of the fields selected.



Because of certain requirements for a major in this specialized field, students are cautioned to consult with their adviser before undertaking work toward the bachelor of science degree.

### Pre-Dentistry

*Advisers*—H. Collins (Biol); Firling (Biol)

The following courses, for a total of 135 credits, must be completed during the freshman, sophomore, and junior years:

Biol 1109-1110—General Biology (10)

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 3512-3513—Organic Chemistry (10)

(or) Chem 3530-3531-3532—Organic Chemistry (13)

Engl 1106-1107—Freshman Composition (plus 4) (12)

Math 1185—Pre-Calculus Analysis (5)

Phys 1001-1002, 1003—Elementary Physics (12)

Psy 1003—General Psychology (5)

Spch 1101—Rhetoric of Our Times (3)

Electives—Especially recommended are Art 1002, 1010, 1012, 1405; BA 3304; Biol 3153, 3243, 5235, 5517; Chem 3210, Chem 3310; Econ 1004; Psy 3311 and 3321 or 3331; Spch 1111

It is also strongly recommended that students complete additional credits in such liberal arts areas as anthropology, economics, history, humanities, language, philosophy, political science, and sociology.

Application should be made before February 1 prior to the fall quarter the applicant desires to enroll in the School of Dentistry on the Minneapolis campus. The American Dental Association Admission Test must be taken before the student's application can be considered.

### Pre-Engineering

*Advisers*—Casserberg (Phys); Likely (Phys); Oakland (Phys)

This program provides the first 2 years of an engineering curriculum. After completing the 2-year curriculum, the majority of students transfer to the Institute of Technology on the Minneapolis campus. Although the program is designed to facilitate transfer to the Institute of Technology in Minneapolis, students can generally transfer to other engineering schools with no difficulty.

**Admission Requirements**—No formal requirements beyond those listed in section I are required of entering freshmen planning to complete the first 2 years of lower division work leading to an engineering degree. However, it is strongly recommended that entering freshmen compare their preparation with the following current requirements and recommendations of the Institute of Technology in Minneapolis.

1. Twelve high school units in grades 10-12 including:
  - a. Three units in English.
  - b. Two or more units selected from among history, foreign languages, the social sciences, and the biological sciences.
  - c. Four years of high school mathematics divided approximately into 2 years of algebra and 2 years of geometry (two and three dimension, including trigonometry).

- d. One year of chemistry and 1 year of physics strongly recommended.
2. In recent years, the primary factors considered in determining admissibility, in addition to course requirements, are high school class rank and performance on either the ACT mathematics and natural science tests, the PSAT mathematics test, or the SAT mathematics and verbal tests. Few students who have a high school rank below the 60th percentile are accepted as freshmen.

## **REQUIREMENTS FOR LOWER DIVISION WORK IN ENGINEERING**

### **Mechanical and Civil Engineering (90)**

Chem 1110-1111—General Chemistry  
(or) Chem 1130-1131—General Chemistry (10)  
Egn 1000—Introduction to Engineering (2)  
Egn 1015-1016—Statics, Deformable Body Mechanics (8)  
Egn 1025—Engineering Graphics (4)  
Engl 1106-1107—Freshman Composition (8)  
Math 1296-1297-3298—Calculus I, II, III (15)  
Math 1501—FORTRAN Programming (3)  
Math 3320—Vectors and Matrices (4)  
Math 3380—Differential Equations (5)  
Phys 1107-1108-1109—General Physics (15)  
Phys 3080—Dynamics (4)  
Electives to make a total of 90 credits or more

### **Electrical Engineering (90)**

Chem 1110-1111—General Chemistry  
(or) Chem 1130-1131—General Chemistry (10)  
Egn 1000—Introduction to Engineering (2)  
Engl 1106-1107—Freshman Composition (8)  
Math 1296-1297-3298-3350—Calculus I, II, III, IV (20)  
Math 1501—FORTRAN Programming (3)  
Math 3320—Vectors and Matrices (4)  
Math 3380—Differential Equations (5)  
Phys 1107-1108-1109—General Physics (15)  
Phys 3080-3081—Dynamics, Electricity and Magnetism (8)  
Phys 3085—Electrical Networks (4)  
Electives to make a total of 90 credits or more

### **Chemical Engineering/Materials Engineering**

Students planning to enter these programs should consult the Department of Chemistry.

### **Mineral/Geo-Engineering**

Students planning to enter these programs should follow the mechanical and civil engineering program with the addition of Chem 1112.

### **Other Engineering Specialties**

Students planning to enter any other field of engineering should consult the Department of Physics.

Students who satisfactorily complete at least 90 credits at UMD, including the required courses specified above, are certified as having completed the lower division requirements and may transfer to the Institute of Technology with upper division standing.

## Pre-Fishery and Wildlife Management

Adviser—Krogstad (Biol)

This curriculum provides 2 years of study fulfilling some of the basic requirements in fisheries and wildlife management. Entry requirements for admission to a major in fisheries or wildlife on the St. Paul campus include:

- a. Completion of 90 quarter credits including those indicated with an asterisk.
- b. A GPA of 2.75 or higher in the core group indicated with an asterisk.

For further information consult the *College of Agriculture Bulletin*.

Biol 1109-1110—General Biology (10)\*

Biol 3773-3774—General Ecology (5)\*

Biol 5517—Comparative Anatomy of Vertebrates (5)\*

Chem 1110-1111-1112—General Chemistry\*

(or) Chem 1130-1131-1132 (15)

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Engl 1106-1107—Freshman Composition (8)

Geol 1110—Introductory Geology (5)\*

Math 1286—Calculus 1 (5)\*

Phys 1001-1002, 1003—Elementary Physics (12)\*

Pol 1011—American Government and Politics (4)

Electives

History, geology, economics (3)

Humanities, literature, or arts (8)

Biology—Depending on if interest is in fisheries or wildlife (consult with adviser)  
(10)

## Pre-Forestry

Adviser—J. Carlson (Biol), J. Kotar (Biol)

This curriculum provides 2 years of study fulfilling the basic requirements in forest resources. Students should consult the *College of Forestry Bulletin* of the St. Paul campus for modifications of this program if they intend to specialize in forest science, forest products, or recreation resource management.

Biol 1109-1110—General Biology (10)

Chem 1103-1104—General Chemistry (10)

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Engl 1106-1107—Freshman Composition (8)

Geol 1110—Introductory Geology (5)

Ind 1501—Basic Drawing (4)<sup>1</sup>

Math 1185—Pre-Calculus Analysis (5)

Math 1296—Calculus I (5)

(or) Math 1160—Calculus, A Short Course (4)

Math 1501—FORTRAN Programming (3)

Math 3561—Elementary Statistics (4)

Phys 1001—Elementary Physics (4)

Spch 1101—Rhetoric of Our Times (3)

Spch 1111—Beginning Public Speaking (3)

<sup>1</sup>Students with a grade of C or better in high school mechanical drawing are exempted from Ind 1501.



Anth 1604—Cultural Anthropology (5)  
(or) Geog 1303—Cultural Geography (4)  
(or) Psy 1003—General Psychology (5)  
(or) Soc 1100—Problems of American Society (5)

The above courses, plus electives to provide a total of at least 80 credits, must be completed before taking the 3½ week summer program at the Lake Itasca Forestry and Biological Station following the sophomore year. A maximum of 5 credits of D grades in required lower division courses will be permitted and a minimum GPA of 2.00 is required for admission to the Itasca session.

Electives may be chosen to apply to the humanities requirement (8-10 credits) for category 4, Artistic Expression. Studio courses in art or music may not be applied to this curriculum. See Liberal Educational Requirements in section II of this bulletin.

Students should consult their adviser on related area electives. Another recommended elective: Chem 1500—Organic Chemistry (5).

## Pre-Journalism

Adviser—Martz (Engl)

Pre-journalism students are advised to elect courses in sociology, psychology, speech-communication, humanities, English or American literature, geography, anthropology, philosophy, and political science.

Students are expected to be able to type, or learn to type, early in their University studies. This program meets entrance requirements of the Minneapolis campus School of Journalism and Mass Communication, accredited by the American council on Education for Journalism. Students planning to matriculate in another journalism school should consult the requirements of that school.

### Freshman Year

Engl 1106-1107—Freshman Composition (8)  
Jour 1102—Introduction to Mass Communications (4)  
Pol 1011—American Government and Politics (4)  
Select from the following science offerings:

Ast 1010-1020—Descriptive Astronomy (6)  
Biol 1109-1110—General Biology (10)  
Chem 1103-1104—General Chemistry (10)  
Geol 1110—Introductory Geology (5)  
Phys 1001-1002—Elementary Physics (8)

Language requirement (see current *College of Liberal Arts Bulletin* for the Twin Cities campus)

Electives, if necessary, to total at least 45 credits

### Sophomore Year

Econ 1004—Principles of Economics: Micro (4)  
Econ 1005—Principles of Economics: Macro (4)  
Engl 3115—Writing Fiction (4)  
Jour 1105—Reporting (4)  
Jour 3102—Publications Editing (4)  
Jour 3122—Mass Communications Law (4)  
Jour 3203—Public Affairs Reporting (4)  
Jour 3402—History of Journalism (4)  
Select 8 credits from Hist 1301, 1302, 1303—American History  
Electives to total 90 credits at the end of sophomore year

Pre-journalism students must complete the Minnesota English Test and a typing proficiency test prior to enrollment in Jour 1105, Reporting. Dates and locations for administration of the tests will be published in the *Advisement Newsletter* and in the *UMD Statesman*.

## Pre-Law

*Advisers*—Grau (Pol); Olsen (Pol); von Glahn (Pol)

Since entrance requirements differ for the various law schools, prospective law students should, as early as possible, obtain information from the law school they expect to attend. Students should be aware that successful completion of the Law School Admission Test (LSAT) is a requirement for admission to most law schools.

Admission to law school requires the bachelor of arts degree or its equivalent. The degrees of bachelor of science and bachelor of business administration with a well-balanced program are accepted as the equivalent of the B.A. degree by most law schools.

Law schools do not recommend particular areas of study for pre-law students. While many students major in economics, history, or political science, other departmental majors provide a good background for law study and practice. These include such areas as philosophy, the humanities, English, sociology, psychology, mathematics, the physical sciences, anthropology, geography, journalism, speech-communication, and modern languages. Law schools welcome and encourage a variety of educational backgrounds among students. Each student's education should be as broad as is consistent with the completion of the major requirements. Students should ordinarily endeavor to select electives in areas that are not too closely related to their major field. For example, a student majoring in mathematics or physics is encouraged to take advanced electives in such areas as economics, political science, or history.

Law schools attach special importance to training that helps their students express themselves in the English language forcefully, effectively, and accurately. Whatever the specialty, the professional career in law requires communication of ideas through words, oral and written. Success in law school, as well as in subsequent professional practice, depends to a considerable extent on development of the capacity for effective verbal expression. Therefore, students are encouraged to take courses that require independent thought and writing. Students should also develop, through course work or activities, their capacities for expressing themselves orally. Knowledge of the principles of accounting are also helpful.

## Pre-Medical Technology

*Adviser*—Hanten (Biol)

The pre-medical technology student entering the program on the Duluth campus may take the first 2 years of training before transferring to the Minneapolis campus to complete the degree work. Upon the completion of the prescribed curriculum, the student will receive the bachelor of science degree in medical technology.

The following courses are prerequisites for admission to the junior year:

Biol 1012—Human Anatomy (5)

Biol 1109-1110—General Biology (10)

Chem 1110-1111-1112—General Chemistry

(or) Chem 1130-1131-1132—General Chemistry (15)

Chem 3210—Introductory Quantitative Analysis (5)

Chem 3512-3513—Organic Chemistry (10)  
Engl 1106-1107—Freshman Composition (8)  
Math 1110—College Algebra  
(or) Math 1185—Pre-Calculus Analysis (5)  
Phys 1001-1002, 1003—Elementary Physics (12)  
Electives in humanities and social science courses to make a total of 90 credits

## Pre-Medicine

*Adviser*—Odlaug (Biol)

### Freshman Year

Biol 1109-1110—General Biology (10)  
Chem 1110-1111-1112—General Chemistry  
(or) Chem 1130-1131-1132—General Chemistry (15)  
Engl 1106-1107—Freshman Composition (8)  
Literature or classics (4)  
Math 1185—Pre-Calculus Analysis (5)  
Math 1286—Calculus I (5)

### Sophomore Year

Chem 3210—Introductory Quantitative Analysis (5)  
Chem 3512-3513—Organic Chemistry (10)  
Math 1287—Calculus II (5)  
Phys 1107-1108-1109—General Physics (15)  
Credits from category 3, Man and Society (9-18)

### Junior Year

Biol 3153—Principles of Genetics (3)  
Biol 5517—Comparative Anatomy of Vertebrates  
(or) Biol 3243—Cellular Biology  
(or) Biol 5235—Developmental Biology (5)  
Credits from category 4, Artistic Expression (9-18)

Students are strongly encouraged to obtain a bachelor's degree before entering Medical School.

In addition to the physical and biological sciences, courses in the humanities, social sciences, and behavioral sciences are required.

**Preliminary Tests**—The Medical College Admissions Test (MCAT) must be taken in May or October prior to the fall quarter for which the student is seeking admission. In addition, arrangements must be made to take the battery of tests for the Minneapolis campus Medical School.

Application for admission to the Medical School must be filed in the office of the dean of the school between May 15 and November 1 of the year preceding that in which the student plans to enter.

## Pre-Nursing

*Adviser*—Austin (Admissions)

Students interested in earning a bachelor's degree in nursing may complete their first (pre-nursing) year at UMD. Admission to most schools vary considerably, students should, as early as possible, secure information from the school where the professional work is to be taken and the degree granted. It is important that students



consult their adviser at UMD before planning their program for the freshman year in order to facilitate transfer at the sophomore level.

The University of Minnesota School of Nursing in Minneapolis requires completion of a preprofessional year that includes 45 credits with a 3.00 (B) GPA. Minority students may be given individual consideration. The 45 credits must include:

Anth 1604—Cultural Anthropology (5)

Biol 1102—Biology and Man (5)

Chem 1103-1104—General Chemistry (10)

Engl 1106-1107—Freshman Composition (8) (or exemption)

Soc 1100—Problems of American Society (5)

The remaining required credits must be fulfilled by selections from the humanities and social sciences (see categories A and D of the distribution requirements in the *College of Liberal Arts Bulletin*).

Other schools of nursing in the state may have additional pre-nursing requirements. Consult the appropriate college bulletin.

## Pre-Occupational Therapy/Pre-Physical Therapy

Adviser—Hedman (Biol)

The University offers, in the Department of Physical Medicine and Rehabilitation on the Minneapolis campus, 4-year curricula in both occupational therapy and physical therapy. The first 2 years in either program may be taken on the Duluth campus. Students should consult the *Occupational Therapy/Physical Therapy Bulletin* and are encouraged to contact the directors of the programs for more specific information.

At Duluth, a total of approximately 90 credits should be completed in the first 2 years. The following courses or their equivalents are required:

### PRE-OCCUPATIONAL THERAPY

#### Freshman Year

Art 1002—Introduction to Art (4)

Art 1405—Ceramics (3)

Biol 1109—General Biology (5)

Chem 1101—Aspects of Chemistry (5)

Engl 1106-1107—Freshman Composition (8) (or exemption)

Hlth 3101—Personal and Community Health (3)

Ind 1102—Basic Wood Technology (4)

Psy 1003—General Psychology (5)

Soc 1100—Problems of American Society (5)

#### Sophomore Year

Biol 1012—Human Anatomy (5)

Biol 1042—Human Physiology (5)

Ind 1602—Introduction to Graphic Arts (4)

Psy 3331—Developmental Psychology (5)

Psy 3531—Mental Hygiene (3)

PsyF 5121—Psychology of Behavior Disorders (4)

Spch 1101—Rhetoric of Our Times (3)

Spch 1111—Beginning Public Speaking (3)

Credits in elective courses. These should include courses in English, anthropology, geography, humanities, psychology, art, or language (16)

## PRE-PHYSICAL THERAPY

### Freshman Year

Biol 1109-1110—General Biology (10)

Chem 1103-1104—General Chemistry (10)

Engl 1106-1107—Freshman Composition (8) (or exemption)

Psy 1003—General Psychology (5)

### Sophomore Year

Biol 1012—Human Anatomy (5)

Biol 1042—Human Physiology (5)

Phys 1001-1002—Elementary Physics (8)

Psy 3531—Mental Hygiene (3)

PsyF 5121—Psychology of Behavior Disorders (4)

Credits in elective courses. These should include courses in language, speech, art, music, humanities, psychology, anthropology, geography, or mathematics (32)

## Pre-Pharmacy

Adviser—Caple (Chem)

The pharmacy curriculum is a 5-year course at the University of Minnesota. Students may obtain 2 years of pre-pharmacy training on the Duluth campus before entering the College of Pharmacy on the Twin Cities campus for 3 years of professional study. Applicants who have successfully completed the following courses will be eligible to apply for admission to the 3-year professional curriculum in the College of Pharmacy:

Biol 1109-1110—General Biology (10)

Chem 1110-1111-1112—General Chemistry

(or) Chem 1130-1131-1132—General Chemistry (15)

Chem 3530-3531-3532—Organic Chemistry (13)

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Engl 1106-1107—Freshman Composition (8)

Math 1110—College Algebra

(or) Math 1185—Pre-Calculus Analysis (5)

Phys 1001-1002, 1003—Elementary Physics (12)

Electives—for example: Hlth 1101, 1102, 1500 (6-10)

## Pre-Theology

Adviser—Maclear (Hist)

Students who intend to enter a theological seminary or take other special training for religious work should determine as soon as possible what graduate institution they will enter and what prerequisites that institution requires. (Students may also wish to consult with the appropriate UMD campus chaplain.) In general, the following program corresponds with the recommendations of many seminaries:

### English

Engl 1504, 1505—Masterworks of English Literature (8)

Hum 1022—The Bible as Literature (4)

Spch 1101—Rhetoric of Our Times (3)

Spch 1111—Beginning Public Speaking (3)

### **History**

Hist 1204, 1205, 1206—Introduction to Modern Europe (12)

Hist 1301, 1302, 1303—American History (12)

### **Philosophy**

Phil 1001—Problems of Philosophy (4)

Phil 1003—Ethics and Society (4)

Phil 1005—Logic and Scientific Method (5)

Phil 1007—Philosophy of Religion (4)

Phil 3301, 3302, 3303, 3304—History of Philosophy (16)

### **Psychology**

Psy 1003—General Psychology (5)

### **Social Sciences and Education**

At least 12 credits selected from the following areas: anthropology, economics, education, political science, sociology (at least two of these areas should be represented in the student's program)

It is recommended that students take 6 quarters of either French or German.

Under the present organization of the curriculum at the University, this program can best be fulfilled through an English, history, philosophy, or social sciences major and with a minor in any of the above subjects not used as a major or in French or German.

In addition, students are encouraged to take the following courses that especially relate to some aspect of the study of religion:

Engl 5331—Milton (4)

Hist 1054, 1055, 1056—Ancient Civilization (12)

Hist 3280—Church and State in Modern Europe (3)

Hist 3374, 3375—Growth of American Thought (8)

Hist 5124, 5125, 5126—Renaissance and Reformation (12)

Lat 1101-1102-1103—Beginning Latin (15)

Phil 3280—Ethical Theory (3)

Phil 3421—Oriental Philosophies (4)

Students who plan careers in some special type of religious work (e.g., church secretariat, religious education, or church music) are directed to additional course offerings in the School of Business and Economics, the College of Education, and the School of Fine Arts.

## **Pre-Veterinary Medicine**

*Adviser*—Fluegel (Biol)

The College of Veterinary Medicine on the St. Paul campus will consider qualified students during their third year of the pre-veterinary program. A minimum of 90 quarter-credit hours is required prior to admission to the college. Pre-veterinary students at UMD are not required to complete the liberal education requirements of UMD, but the college urges students to take liberal education course work that is similar to the UMD distribution requirements. The minimum pre-veterinary course requirements should be taken on the A-N grading system. The current bulletin from the college can be secured from the UMD Counseling Office or directly from the College of Veterinary Medicine, 295K Animal Science/Veterinary Medicine Building, 1988 Fitch Avenue, University of Minnesota, St. Paul, Minnesota 55108.



The following courses should satisfy the recommendations for entrance into the college:

**Biology**

Biol 1109-1110—General Biology (10)

**Chemistry**

Chem 1110-1111-1112—General Chemistry

(or) Chem 1130-1131-1132—General Chemistry (15)

Chem 3210—Introduction to Qualitative Analysis (5)

Chem 3512-3513—Organic Chemistry (10)

**Economics**

Econ 1002—Introduction to Economics

(or) Econ 1004—Principles of Economics: Micro

(or) Econ 1005—Principles of Economics: Macro (4)

**English**

Engl 1106-1107—Freshman Composition (8)

**Mathematics**

Math 1110—College Algebra (5)

Math 1185—Pre Calculus (5)

(High school trigonometry is acceptable; high school prerequisite is 2 years of algebra and 1 year of geometry.)

**Physics**

Phys 1001-1002-1003—Elementary Physics (12)

(or) Phys 1107-1108-1109—General Physics (15) (see math requirement)

**Public Speaking**

Spch 1101—Rhetoric of Our Times (3)

Spch 1111—Beginning Public Speaking (3)

Courses in Category 3 of the Liberal Education Distribution (4)

Courses in Category 4 of the Liberal Education Distribution (8)

The trend in Minnesota and throughout the country is to complete 3 or more years of college work before admission to veterinary school. About one-fourth of those now in veterinary school have a bachelor's degree. Degree majors range from history, German, and economics to biology, philosophy, and others.

Students electing to complete a baccalaureate degree should follow degree requirements of UMD. Various courses at UMD that may be beneficial later in veterinary school include genetics, developmental biology, comparative anatomy of vertebrates, cellular biology, and biochemistry.

It is recommended that students take at least courses in two sciences or a math and a science course each quarter along with the liberal education electives or required courses.

Competition for entry into the College of Veterinary Medicine is keen and is based in part on grades and test scores, experience with animals, employment experiences, and similar background. Application for admission to the college should be made no later than November 15 for entry the following fall (about 1 year prior to desired entrance). To apply, write directly to the Office of Admissions and Records, 130 Coffey Hall, 1420 Eckles Avenue, University of Minnesota, St. Paul, Minnesota 55108.

## **AEROSPACE STUDIES (Air)**

*Faculty*—Lt. Col. Edward G. Baxter, M.B.A., Professor and Head; Captain Craig R. McCollor, M.Ed., Assistant Professor; Captain Randy H. Massey, M.S., Assistant Professor

The Air Force ROTC program enables qualified young men and women to work toward commissioning as officers in the U.S. Air Force while they are completing requirements for a University degree. Students take Air Force ROTC course work while completing their regular curriculum and are commissioned as a second lieutenant in the United States Air Force upon graduation.

The Department of Aerospace Studies offers both 4-year and 2-year commissioning programs. Scholarships are available on a competitive basis. They cover full University tuition, fees, all required textbooks, plus \$100 per month. (For details on the two commissioning programs and scholarships, see the General Information section of this bulletin.) Students who are not members of the Air Force ROTC program can enroll in any aerospace studies courses for credit only.

The following courses are required for both the 2-year and 4-year commissioning programs:

### **CORE PROGRAM—PROFESSIONAL OFFICER COURSE**

Air 3301—National Security Forces in Contemporary American Society (3)

Air 3302—National Security Forces in Contemporary American Society (3)

Air 3303—National Security Forces in Contemporary American Society (3)

Air 3401—Leadership and Management (3)

Air 3402—Leadership and Management (3)

Air 3403—Leadership and Management (3)

**Total (18)**

## **MINOR IN AEROSPACE STUDIES FOR THE B.A. DEGREE**

The aerospace studies minor is designed to prepare students for entry into the Air Force as officers in either flying or nonflying career fields.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses—General Military Courses (6)**

Air 1101—United States Military Forces (1)

Air 1102—United States Military Forces (1)

Air 1103—United States Military Forces (1)

Air 1201—Development of Air Power (1)

Air 1202—Development of Air Power (1)

Air 1203—Development of Air Power (1)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Course (18)**

Core Program—Professional Officer Course (18)

#### **Required Supporting Course (3)**

Pol 3412—International Law III (3)

**Total for Minor (27)**

Cadets accepted for the flight instruction program, consisting of 25 hours of flight instruction, are required to complete Air 3481, Weather and Navigation (3).

## **AMERICAN INDIAN STUDIES (Amln)**

*Faculty*—Robert E. Powless, M.S., Instructor and Director

This program is designed to promote Indian awareness through a better understanding of American Indian cultures, histories, and present-day situations. The program, developed by members of the local Indian community, serves to both acquaint the non-Indian with the situations and problems of the American Indian peoples, and broaden and develop the knowledge of the Indian student in his or her heritage in order to promote a positive concept of self-identity and pride in ancestry. The program will, in addition, provide training and supportive resources for those in the areas of teaching social services.

### **MINOR IN AMERICAN INDIAN STUDIES FOR THE B.A. OR B.S. DEGREE**

The minor is designed to provide an opportunity for Indians and non-Indians to pursue in-depth studies in Indian history and culture.

#### **LOWER DIVISION PROGRAM**

##### **Required Minor Courses (8)**

Amln 1100—Indian-White Relations, 1776-1887 (3)

Anth 1604—Cultural Anthropology (5)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (13)**

Amln 3051—American Indians in the 20th Century (4)

Amln 3200—Projects in American Indian Studies (5)

Amln 5920—Ojibway History and Culture (4)

Electives from the following courses: Amln 1101, 5910; Anth 3614, 3616, 3618 (students in education may elect Educ 5381) (12)

**Total for Minor (33)**

## **ANTHROPOLOGY (Anth)**

(Sociology-Anthropology Department)

*Faculty*—Aschenbrenner, Aufderheide, Rapp, Roufs, D. Smith

The anthropology curriculum focuses on the development and diversity of peoples of the world and serves (a) to provide a cross-cultural perspective supportive of other disciplines and areas of study, (b) to prepare students for graduate study in anthropology or other social sciences, and (c) to provide a general understanding of people living at different times and in different places. A student may either minor in anthropology or elect the anthropology concentration within the sociology-anthropology major. Students interested in anthropology, archaeology, or ethnohistory should consult with an anthropology faculty member to plan a program. Students interested in linguistics should consult with a member of the linguistics faculty.



## **MINOR IN ANTHROPOLOGY FOR THE B.A. OR B.S. DEGREE**

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (17)**

Anth 1604—Cultural Anthropology (5)

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (20)**

Anth 5626—Development of Anthropological Theory (4)

Credits from 3000-level anthropology courses<sup>1</sup> (8)

Credits from 5000-level anthropology courses<sup>1</sup> (8)

#### **Total for Minor (37)**

Sociology majors who minor in anthropology may not apply Soc 1400 and Soc 1410 to fulfill requirements for the minor. Instead, 10 additional credits in anthropology courses must be taken.

## **ASTRONOMY (Ast)**

*Faculty*—Donald Jackson, Associate Professor

## **BIOLOGY (Biol)**

*Faculty*—Theron O. Odlaug, Ph.D., Professor and Head; George E. Ahlgren, Ph.D., Associate Professor; John B. Carlson, Ph.D., Professor; Hollie L. Collins, Ph.D., Associate Professor; Raymond W. Darland, Ph.D., Professor; Conrad E. Firling, Ph.D., Assistant Professor; Walter Fluegel, M.S., Assistant Professor; Helen B. Hanten, B.S., Instructor; Stephen C. Hedman, Ph.D., Associate Professor; Pershing B. Hofslund, Ph.D., Professor; Linda L. Holmstrand, M.S., Assistant Professor; John Kotar, Ph.D., Assistant Professor; Blanchard O. Krogstad, Ph.D., Professor; Olga Lakela, Ph.D., Professor Emeritus; Paul H. Monson, Ph.D., Professor

The department provides instruction and research experience for undergraduates and graduates as part of a liberal education, preparation for graduate school, or a sound basis for professional training in the biological and health sciences.

The following courses are the required core for all B.A., B.S., and B.A.S. majors and minors in biology:

### **REQUIRED BIOLOGICAL SCIENCES CORE**

Biol 1109-1110—General Biology (10)

Biol 3153—Principles of Genetics (3)

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<sup>1</sup>Four credits of approved American Indian studies courses may be substituted at the 3000 level and at the 5000 level. Approved courses include Amln 3051, American Indians in the 20th Century; Amln 5920, Ojibway History and Culture; and those subjects in Amln 5910, Topics in American Indian Studies, that have been approved by the Department of Sociology-Anthropology.

Biol 3243—Cellular Biology  
(or) Chem 3310—Biochemistry  
(or) approved substitute (5)  
Biol 3773—General Ecology (3)

**Total (21)**

## MAJOR IN BIOLOGY FOR THE B.A. DEGREE

This major is designed for those students who wish to pursue a more traditional liberal arts major.

### LOWER DIVISION PROGRAM

**Required Major Course (10)**

Credits in general biology (10)

**Required Supporting Courses (20)**

Chem 1103-1104—General Chemistry, or approved substitute (10)

Chem 1500—Organic Chemistry, or approved substitute (5)

Math 1185—Pre-Calculus Analysis (5)

### UPPER DIVISION PROGRAM

**Required Major Courses (40)**

Credits from core (11)

Biol 3774—General Ecology Laboratory (2)

Biol 3960—Seminar (1)

Biology electives (26)

**Total for Major (70)**

## MAJOR IN BIOLOGY FOR THE B.S. DEGREE

This major is designed for those students interested in a more rigorous program of supporting courses in the physical sciences and mathematics than is required for the B.A. major

### LOWER DIVISION PROGRAM

**Required Major Course (10)**

Credits in general biology (10)

**Required Supporting Courses (20)**

Chem 1110-1111-1112—General Chemistry

(or) Chem 1130-1131-1132—General Chemistry (15)

Math 1296—Calculus I (5)

### UPPER DIVISION PROGRAM

**Required Major Courses (40)**

Credits from core (11)

Biol 3774—General Ecology Laboratory (2)

Biol 3960—Seminar (1)

Biology electives (26)

**Required Supporting Courses (30-35)**

Chem 3512-3513—Organic Chemistry (10)

(or) Chem 3520-3521-3522—Organic Chemistry (15)

A minimum of 20 cr chosen from the following:

Chem 3210, 3522, 5332, 5333, 5610, 5611; Geol 1110<sup>1</sup>, 3200, 5020, 5211, 5700;

Math 1297<sup>1</sup>, 1501<sup>1</sup>, 3298, 3519, 3561; Phys 1001-1002, 1003<sup>1</sup>, 1107-1108-1109<sup>1</sup>  
(20)

**Total for Major (100-105)**

**MINOR IN BIOLOGY  
FOR THE B.A. OR B.S. DEGREE**

**LOWER DIVISION PROGRAM**

**Required Minor Course (10)**

Biol 1109-1110—General Biology (10)

**Required Supporting Courses (20)**

Chem 1103-1104—General Chemistry, or approved substitute (10)

Chem 1500—Organic Chemistry, or approved substitute (5)

Math 1185—Pre-Calculus Analysis (5)

**UPPER DIVISION PROGRAM**

**Required Minor Courses (20)**

Biol 3153—Principles of Genetics (3)

Biol 3243—Cellular Biology

(or) Chem 3310—Biochemistry

(or) approved substitute (5)

Biol 3773—General Ecology Lecture (3)

Electives in biology courses numbered 3000 or above (9)

**Total for Minor (50)**

**BROAD AREA SCIENCE**

*Adviser*—Likely (Phys)

**MAJOR IN TEACHING BROAD AREA SCIENCE, MIDDLE SCHOOL-  
JR. HIGH FOR THE B.A.S. DEGREE (CE)**

(Subject to approval by the Board of Regents)

This program meets the new licensure requirements of the Minnesota Department of Education that become effective after July 1, 1979. This program should be followed by students who intend to seek licensure after this date to teach broad area science at the middle school or junior high school level.

**LOWER DIVISION PROGRAM**

**Required Major Courses (55-56)**

Ast 1010—Descriptive Astronomy (3)

Biol 1012—Human Anatomy

(or) Biol 5517—Comparative Anatomy of Invertebrates (5)

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<sup>1</sup>It is expected that students will complete these courses in the first 2 years.



Biol 1109-1110—General Biology (10)  
 Chem 1103-1104—General Chemistry (10)  
 Geol 1110—Introductory Geology (5)  
 Phys 1001-1003—Elementary Physics (8)  
 Phys 1002—Elementary Physics (4)  
 (or) Chem 1500—Organic Chemistry (5)  
 EdSe 1201—Phase I: Orientation to Teaching (2)  
 Electives in mathematics (8)

**Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)  
 Electives in physical education (3)

**UPPER DIVISION PROGRAM**

**Required Major Courses (62-63)**

Geog 3412—Weather Elements (4)  
 Geol 3131—Oceanography (4)  
 Electives in biology (9)  
 Electives in geology (6)  
 Electives from the following (7-8):  
     Chem 3106—Chemistry in Modern Life (4)  
     Educ 5236—Environmental Education for Teachers (3)  
     Geog 1305—Environmental Conservation (4)  
     Geol 3150—Environmental Geology (4)  
     Phys 3050—Environmental Studies (4)  
     Pol 3080—Government and Conservation (4)  
     Pol 3089—Conservation Problems (3)  
 EdSe 3101—Phase II: Learning Theory Applications (7)  
 EdSe 3202—Phase III: Human Relations (4)  
 EdSe 3301—Phase IV: Student Teaching (14)  
 EdSe 3401—Phase V: The Teaching Profession (4)  
 EdSe 3233—Teaching Science-Secondary (3)

**Required Supporting Courses (9)**

Educ 3201—Effects of Narcotics and Alcohol (1)  
 Educ 3203—Drug Use Information and Education (1)  
 Educ 3234—Science, Technology and Society (3)  
 Hum 3051—Science and Civilization (4)

**Total for Major (131-133)**

## CHEMISTRY (Chem)

*Faculty*—Larry C. Thompson, Ph.D., Professor and Head; Paul M. Anderson, Ph.D., Professor; Thomas J. Bydalek, Ph.D., Professor; Ronald Caple, Ph.D., Professor; Robert M. Carlson, Ph.D., Professor; Edward J. Cowles, Ph.D., Professor; Lester R. Drewes, Ph.D., Assistant Professor; Donald K. Harriss, Ph.D., Professor; Thomas E. Huntley, Ph.D., Assistant Professor; Vincent R. Magnuson, Ph.D., Associate Professor; Francis B. Moore, Ph.D., Professor Emeritus; James C. Nichol, Ph.D., Professor; Donald P. Poe, Ph.D., Assistant Professor; Philip E. Rakita, Ph.D., Assistant Professor; Wilmar L. Salo, Ph.D., Associate Professor; Bilin P. Tsai, Ph.D., Assistant Professor

The mission of the Department of Chemistry is to provide courses and research experience in the various fields of chemistry to meet the needs of students in the

liberal arts and preprofessional programs of the University as well as of students who wish to pursue careers in the field.

**Honors Program**—Qualified chemistry majors are selected for the honors program at the end of the sophomore year. Grade point averages must be 3.25 in chemistry and 3.00 overall. The major adviser, in consultation with the departmental honors committee, assists students in planning the basic program (including Chem 3192), other advanced courses beyond the major curriculum, and the comprehensive oral examination early in the spring quarter of the senior year. See the department head for further details.

Under certain circumstances, some course substitutions for the various majors and minors are permitted by consent of the department.

For students interested in graduate school, 15 credits of German are strongly recommended.

Students who wish to be certified to the American Chemical Society as having completed the minimum requirements set for the B.S. degree must elect advanced courses that include 75 hours of laboratory work, of which only 45 may be in senior honors research. At least 2 quarters of German are also recommended.

## **MAJOR IN CHEMISTRY FOR THE B.S. DEGREE**

This program is designed primarily for students who wish to pursue careers in chemistry or chemistry-related fields.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (28)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 3530-3531-3532—Organic Chemistry (13)

#### **Required Supporting Courses (37)**

Math 1296—Calculus I (5)

Math 1297—Calculus II (5)

Math 1501—FORTRAN Programming (3)

Math 3298—Calculus III (5)

Math 3320—Vectors and Matrices (4)

Phys 1107-1108-1109—General Physics (15)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (31)**

Chem 3180—Undergraduate Seminar (1)

Chem 3210—Introductory Quantitative Analysis (5)

Chem 5120—Advanced Chemistry Laboratory (1)

Chem 5121-5122-5123—Advanced Chemistry Laboratory (6)

Chem 5230—Quantitative Analysis (3)

Chem 5420-5421—Inorganic Chemistry (6)

Chem 5620-5621-5622—Physical Chemistry (9)

**Total for Major (96)**

## **MINOR IN CHEMISTRY FOR THE B.S. DEGREE**

This program is designed for those students who have elected the B.S. degree.

**LOWER DIVISION PROGRAM****Required Minor Courses (28)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 3530-3531-3532—Organic Chemistry (13)

**UPPER DIVISION PROGRAM****Required Minor Course (5)**

Chem 3210—Introductory Quantitative Analysis (5)

**Total for Minor (33)**

At least 5 credits of college mathematics are required. Students may substitute Chem 3512-3513 and either Chem 3310 or 5610 for Chem 3530-3531-3532.

**MAJOR IN CHEMISTRY FOR THE B.A. DEGREE**

This program is designed primarily for students completing a liberal arts degree in chemistry.

**LOWER DIVISION PROGRAM****Required Major Courses (25-28)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 3512-3513—Organic Chemistry (10)

(or) Chem 3530-3531-3532—Organic Chemistry (13)

**Required Supporting Courses (20)**

Math 1296—Calculus I (5)

Phys 1107-1108-1109—General Physics (15)

**UPPER DIVISION PROGRAM****Required Major Courses (18-20)**

Chem 3210—Introductory Quantitative Analysis (5)

Chem 5420-5421—Inorganic Chemistry (6)

Chem 5610-5611—Physical Chemistry (7)

(or) Chem 5620-5621-5622—Physical Chemistry (9)

**Total for Major (63-68)**

All students are urged to substitute Chem 3530-3531-3532 for Chem 3512-3513, and those who are qualified are urged to substitute Chem 5620-5621-5622 for Chem 5610-5611. Students are also encouraged to complete additional courses in mathematics.

**MINOR IN CHEMISTRY FOR THE B.A. DEGREE**

This program is designed for students who have elected the B.A. degree.

**LOWER DIVISION PROGRAM****Required Minor Courses (25)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 3512-3513—Organic Chemistry (10)



### **UPPER DIVISION PROGRAM**

#### **Required Minor Course (5)**

Chem 3210—Introductory Quantitative Analysis (5)

#### **Total for Minor (30)**

At least 5 credits in college mathematics are required.

### **MINOR IN TEACHING CHEMISTRY FOR THE B.A.S. DEGREE (CE)**

This program is open only to students completing some other science teaching major. For major programs, see Earth Science, Life Science, and Physical Science in this section of the bulletin.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (15)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

#### **Required Supporting Courses (8-10)**

Phys 1001-1003—Beginning Physics (8)

(or) Phys 1107-1108 or 1109—General Physics (10)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (15)**

Chem 3210—Introductory Quantitative Analysis (5)

Chem 3512-3513—Organic Chemistry (10)

#### **Total for Minor (38-40)**

## **COMMUNICATIONS**

(English Department)

*Adviser*—Martz (Engl)

### **MINOR IN COMMUNICATIONS FOR THE B.A. OR B.S. DEGREE**

The minor in communications is designed to provide basic knowledge of the operations and role of the communications media, including some emphasis on techniques. It is not intended to fulfill the requirements for preparation for a career as a professional journalist.

#### **Required Minor Courses**

Engl 3111—Advanced Writing (4)

Jour 1105—Reporting (4)

Jour 3102—Publications Editing (4)

Jour 3121—Ethical Problems in Journalism (4)

Jour 3202—Interpretive Reporting (4)

Jour 3203—Public Affairs Reporting (4)

Pol 3310—Public Opinion and Propaganda (4)

Spch 1101—Rhetoric of Our Times (3)

Spch 1302—Mass Communication and Society (3)

#### **Total for Minor (34)**

### **Other Suggested Courses**

Ind 1602—Introduction to Graphic Arts (4)  
Ind 1611—Printing Layout and Design (4)  
Jour 3112—Television-Radio News Writing (4)  
Jour 3120—Public Relations (4)  
Jour 3122—Mass Communication Law (4)  
Jour 3402—History of Journalism (4)  
Jour 3412—Rights and Responsibilities of the Mass Media (4)  
Spch 1401—Beginning Radio Practices (3)  
Spch 1419—History of Broadcasting (3)  
Spch 1425—Beginning Television Practices (3)

## **MINOR IN TEACHING COMMUNICATIONS FOR THE B.A.A. DEGREE (CE)**

The minor in communications is designed to provide basic knowledge of the operation and role of the communications media, including considerable emphasis on skills and techniques

### **Required Minor Courses**

Engl 3111—Advanced Writing (4)  
Jour 1105—Reporting (4)  
Jour 3102—Publications Editing (4)  
Jour 3121—Ethical Problems in Journalism (4)  
Jour 3202—Interpretive Reporting (4)  
Jour 3203—Public Affairs Reporting (4)  
Pol 3310—Public Opinion and Propaganda (4)  
Spch 1101—Rhetoric of Our Times (3)  
Spch 1302—Mass Communication and Society (3)

**Total for Minor (34)**

## **DENTAL HYGIENE PROGRAM (DH)**

*Faculty*—Odin M. Langsjoen, D.D.S., Associate Professor and Director; Catherine A. Bennett, B.S., Instructor; Willis B. Irons, M.S.D., Assistant Professor; Mildred H. Jackson, M.P.H., Instructor; Daniel A. Larson, M.S.D., Assistant Professor; Susan K. Meyer, G.D.H., Instructor; Anthony C. Michelich, D.D.S., Assistant Professor and Supervisor of Clinical Training; Linda Saline, B.S., Instructor; Marilyn N. Strand, B.A., Instructor

This undergraduate training program leads to an associate in science degree in dental hygiene. It consists of 5 quarters and 1 summer term of specialized study in dental hygiene. An academic year of supporting courses in basic science and liberal arts is required for admission into the program.

## **ASSOCIATE IN SCIENCE DEGREE IN DENTAL HYGIENE (CLS)**

### **Required Supporting Courses (46)**

Biol 1001—Elements of Microbiology (4)  
Biol 1012—Human Anatomy (5)  
Biol 1042—Human Physiology (5)  
Chem 1101—Aspects of Chemistry (5)  
Engl 1106—Freshman Composition (4)

## College of Letters and Science

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Engl 1107—Freshman Composition (4)  
HE 1470—Survey of Human Nutrition (3)  
Phys 1010—Ideas in Physics (3)  
Psy 1003—General Psychology (5)  
Soc 1100—Problems of American Society (5)  
Spch 1111—Beginning Public Speaking (3)

### LOWER DIVISION PROGRAM

#### Required Core Courses (34)

Den 1101—Dental Anatomy (4)  
Den 1211—Biomaterials I (2)  
Den 3102—Head and Neck Anatomy (2)  
Den 3103—Developmental Anatomy (2)  
Den 3212—Biomaterials II (2)  
Den 3411—Introduction to Oral Radiography I (2)  
Den 3412—Introduction to Oral Radiography II (2)  
Den 3601—Pharmacology, Clinical Emergencies (2)  
Den 5312—Introduction to Occlusion (2)  
Den 5402—Principles of Radiology and Radiographic Interpretation (2)  
DH 3301—Preclinical Dental Hygiene (4)  
DH 3701—Dental Health Education (2)  
DH 3702—Dental Health Education (2)  
DH 5313—Clinical Dental Hygiene (4)

### UPPER DIVISION PROGRAM

#### Required Core Courses (24)

Den 3211—General and Oral Pathology (2)  
Den 3311—Periodontology (2)  
Den 5413—Clinical Oral Radiography (3)  
Den 5611—Anesthesiology (2)  
DH 1011—Ethics and Practice Management (2)  
DH 3703—Dental Health Education (2)  
DH 5312—Clinical Dental Hygiene (3)  
DH 5314—Clinical Dental Hygiene (4)  
DH 5321—Clinical Dental Hygiene (4)  
Required category 4 liberal education elective courses (8)

#### Total for Program (112)

The program accepts College Level Examination Program (CLEP) credits for Engl 1106-1107.

Students must maintain a minimum 2.00 (C) grade point average in all required courses.

## EARTH SCIENCE (ESci)

(Geology Department)

*Advisers*—Darby, Davidson, Grant, Green, Marsden, Matsch, Ojakangas

### MAJOR IN EARTH SCIENCE FOR THE B.A. DEGREE

This program offers a general liberal arts major in earth science with a wide choice of electives and is designed for those not intending to use this training as a



base for a professional career or graduate work in geology. The program can provide an appropriate educational background for work in areas related to environmental studies, land use planning, and other fields where sensitivity to natural systems is required.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (8)**

Ast 1010—Descriptive Astronomy (3)

Geol 1110—Introductory Geology (5)

##### **Required Supporting Courses (23-25)**

Chem 1103-1104 (or) 1110-1111 (or) 1130-1131—General Chemistry (10)

Math 1110—College Algebra

(or) Math 1185—Pre-Calculus Analysis (5)

2 quarters college physics

(or) 2 quarters college biology (8-10)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (40)**

Geol 3310-3311-3312—Earth Materials I-II-III (13)

Electives in geology (27)

**Total for Major (71-73)**

### **MAJOR IN TEACHING EARTH SCIENCE FOR THE B.A.S. DEGREE (CE)**

This program is designed to prepare a student for teaching earth science in secondary schools.

The program outlined below meets the new licensure requirements of the Minnesota Department of Education that become effective after July 1, 1979. It should be followed by students who intend to seek licensure after this date to teach earth science, including geology, astronomy, and meteorology, at the secondary school level.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses (26)**

Ast 1010, 1020—Descriptive Astronomy (6)

EdSe 1201—Phase I: Orientation to Teaching (2)

Geol 1110—Introductory Geology (5)

Geol 3310-3311-3312—Earth Materials I-II-III (13)

##### **Required Supporting Courses (46)**

Biol 1109-1110—General Biology (10)

Chem 1103-1104 (or) 1110-1111 (or) 1130-1131—General Chemistry (10)

Geog 1403—Physical Geography (4)

Hlth 1101—Personal Health (2)

Math 1185—Pre-Calculus Analysis (5)

Phys 1001-1002-1003—Elementary Physics (12)

Physical education electives (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses (50)**

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3233—Teaching Science-Secondary (3)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Geog 3412—Weather Elements (4)  
Geol 3120—Geology of North America (3)  
Geol 3131—Oceanography (4)  
Geol 3200—Geomorphology (4)  
Geol 5010—Advanced Earth Science for Teachers (3)

**Required Supporting Courses (9)**

Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)  
Educ 3234—Science, Technology, and Society (3)  
Hum 3051—Science and Civilization (4)

**Total for Major (131)**

## **MINOR IN TEACHING EARTH SCIENCE FOR THE B.A.S. DEGREE (CE)**

(Subject to approval by the Board of Regents)

This program is open only to students completing some other science teaching major. For major programs, see Broad Base Science, Life Science, and Physical Science in this section of the bulletin.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (20)**

Geol 1110—Introductory Geology (5)  
Ast 1010—Astronomy (3)  
Phys 1001 and 1002 or 1003—Elementary Physics (8)  
Geog 1403—Physical Geography (4)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (20-21)**

Geog 3412—Weather Elements (4)  
Geol 3310-3311-3312—Earth Materials I-II-III (13)  
Geol 3131—Oceanography (4)  
(or) Geol 3120—Geology of North America (3)

**Total for Minor (40-41)**

## **ENGINEERING**

(College of Letters and Science)

See Pre-Engineering Program, pages 134-135.

## **ENGLISH (Engl)**

*Faculty*—Anna L. Stensland, Ph.D., Professor and Head; Thomas D. Bacig, Ph.D., Associate Professor; Katherine L. Basham, M.F.A., Assistant Professor; William M. Crockett, Ph.D., Professor; Arlan P. Dohrenburg, Ph.D., Assistant Professor; Joseph E. Duncan, Ph.D., Professor; Wendell P. Glick, Ph.D., Professor; Robert C. Hart, Ph.D., Professor; Eleanor M. Hoffman, Ph.D., Assistant Professor; Edith J. Hols, Ph.D., Associate Professor; Klaus P. Jankofsky, Ph.D., Associate Profes-

sor; Lewis D. Levang, Ph.D., Professor; Roger C. Lips, Ph.D., Assistant Professor; Joseph C. Maiolo, M.F.A., Assistant Professor; Howard D. Martz, M.S., Assistant Professor; Robert R. Owens, Ph.D., Professor; Kenneth C. Risdon, M.A., Instructor; Fred E. H. Schroeder, Ph.D., Professor; Albert Tezla, Ph.D., Professor

The Department of English offers courses and programs concerned with the nature of language, understanding and appreciation of literature, and development of skill in writing. These programs serve the goals of training teachers for colleges and high schools, contributing to the liberal education program of the University, and providing instruction in written communication. The department seeks to help its students develop habits of critical thought as well as capabilities for scholarly and creative achievement.

**Honors Program**—Participation in the honors program is by invitation of the English faculty. A GPA of 3.00 overall and 3.20 in the major is required. Honors students must complete Engl 3597, Senior Seminar. Emphasis in the seminar is on intensive study, mutually and individually, of a selected literary problem or problems. See the department head for further details.

## MAJOR IN ENGLISH FOR THE B.A. DEGREE

The B.A. in English offers students great flexibility in planning their course work. Students should work closely with their departmental adviser in selecting a program that will fulfill their personal and professional goals. One B.A. program is especially recommended for students who intend to enter graduate school. Another program, with an emphasis on writing, is recommended for B.A. students planning professional careers in writing, business, publishing, public relations, government service, or mass communication.

Total requirements include 44-45 credits in English or designated journalism courses,<sup>1</sup> 27 of which must be at the 3000 level or above.

The major requires no foreign language, though the study of foreign languages is recommended for all students.

## MINOR IN ENGLISH FOR THE B.A. DEGREE

### LOWER DIVISION PROGRAM

#### Required Major Courses (12)

Engl 1906—Essentials of Literary Analysis (4)

Two courses from the following (8):

Engl 1523, 1533, 1543, 1553, 1565, 1566

### UPPER DIVISION PROGRAM

#### Required Major Courses (20)

One course from the following (4):

Engl 3573, 3574, 3575—American Literature

Engl 3223—Shakespeare (4)

Electives in English courses numbered 3000 or above (12)

**Total for Minor (32)**

<sup>1</sup>The designated journalism courses include: Jour 1105—Reporting, Jour 3122—Mass Communication Law, Jour 3202—Interpretive Reporting, Jour 3203—Public Affairs Reporting, Jour 3102—Publications Editing.



## **MINOR IN ENGLISH WITH EMPHASIS ON WRITING FOR THE B.A. DEGREE**

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (4)**

Jour 1105—Reporting (4)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (28)**

Engl 3111 (1111)—Advanced Writing (4)

Engl 3114 (1114)—Introduction to Writing Careers (2)

Any *one* course from the following:

Engl 3115 (3112)—Writing Fiction (4)

Engl 3131—Advanced Technical Writing (4)

Any *one* course from the following:

Engl 5116 (5111)—Advanced Writing of Fiction (4)

Engl 5121—Poetry Writing (4)

Any *one* course from the following:

Engl 5811—Introduction to Modern English (4)

Engl 5821—History of the English Language (4)

Electives from the following to total 10 credits:

Any of the courses above

Engl 1906—Essentials of Literary Analysis (4)

Engl 5115 (1115)—Internship in Writing (2-4)

Engl 5910—Bibliography and Literary Research (2)

Jour 3202—Interpretive Reporting (4)

Jour 3203—Public Affairs Reporting (4)

Phil 1009—Principles of Right Reasoning (4)

**Total for Minor (32)**

## **MAJOR IN TEACHING ENGLISH FOR THE B.A.A. DEGREE (CE)**

This program is required of students intending to seek teaching licensure in English.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (6)**

EdSe 1201—Teacher Education, Phase I (2)

Engl 1906—Essentials of Literary Analysis (4)

#### **Required Supporting Courses (5)**

HLth 1101—Personal Health (2)

Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (87-89)**

EdSe 5212—Reading in Secondary Schools (4)

Engl 3912—Teaching the Language Arts (4)

Engl 5711—Oral Interpretation (4)

Engl 5811—Introduction to Modern English (4)

Engl 5902—Composition for Teachers (4)

Any one course from each of the following categories and additional courses from any of these categories to total 24-26 credits:

Genre: Engl 3271, 3371, 3471, 5202, 5303, 5411, 5581 (4)

History of American Literature: Engl 3573, 3574, 3575, 5251, 5452, 5575 (4-5)

History of British Literature: Engl 5271, 5443, 5444, 5523, 5533, 5543, 5553, 5565, 5566 (4)

Linguistics: Engl 5821, 5831, 5841; Ling 3101 (4)

Major British and American Authors: Engl 3223, 5222, 5311, 5331, 5471, 5571, 5572 (4-5)

Composition: Engl 3111, 3115, 3131, 5115, 5116, 5121 (4)

Electives from the following to total 12 credits. Students are encouraged to specialize in one area:

Any of the categories above

Broadcast Media and Film: Spch 1302, 1419, 1432, 3341, 3361, 3402, 3403, 3422, 3423, 3431

Humanities: Hum 3001, 3071, 3073, 5001

Journalism: Jour 1102, 1105, 3102, 3112, 3120, 3121, 3122, 3202, 3203, 3402, 3412

Literary Criticism: Engl 5611, 5671

Methods of Instruction: Engl 5912; Hum 5090; EdSe 5212

World Literature: Engl 3506, 3507, 3508, 3511; Fr 3511, Ger 3511; Span 3511

Oral Communication: Spch 3101, 3111, 3121, 3151; SpE 5880; Th 3685

EdSe 3101—Teacher Education, Phase II (7)

EdSe 3202—Teacher Education, Phase III (4)

EdSe 3301—Teacher Education, Phase IV (14)

EdSe 3401—Teacher Education, Phase V (4)

#### **Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (98-100)**

Each student's program must include at least one course in 20th-century American or British literature.

## **MINOR IN TEACHING ENGLISH FOR THE B.A.A. AND B.A.S. DEGREES (CE)**

This program is required of students intending to seek teaching licensure in English.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (4)**

Engl 1906—Essentials of Literary Analysis (4)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (44-46)**

EdSe 5215—Reading in Secondary Schools (4)

Engl 3912—Teaching the Language Arts (4)

Engl 5711—Oral Interpretation (4)

Engl 5811—Introduction to Modern English (4)

Engl 5902—Composition for Teachers (4)

Any one course from each of the following categories (24-26):

Genre: Engl 3271, 3371, 3471, 5202, 5303, 5411, 5581 (4)

History of American Literature: Engl 3573, 3574, 3575, 5251, 5452, 5575 (4-5)

History of British Literature: Engl 5271, 5443, 5444, 5523, 5533, 5543, 5553, 5565, 5566 (4)

Linguistics: Engl 5821, 5831, 5841; Ling 3101 (4)

Major British and American Authors: Engl 3223, 5222, 5311, 5331, 5471, 5571, 5572 (4-5)

Composition: Engl 3111, 3115, 3131, 5115, 5116, 5121 (4)

**Total for Minor** (48-50)

## **MINOR IN ENGLISH (ELEMENTARY) FOR THE B.A.S. DEGREE (CE)**

This minor is designed to provide a planned program of studies in English for prospective elementary school teachers.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses** (12)

Engl 1504 or 1505—Masterworks of English Literature (4)

Engl 1811—Introduction to Language (4)

Engl 3115—Writing Fiction (4)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses** (20)

Engl 3574 or 3575—American Literature (4)

Any two from the following (8):

Hum 1021, 1022, 1023; Engl 1905, 3506, 3507, 3508

Any two English courses other than those taken above, one of which must be numbered 3000 or above (8)

**Total for Minor** (32)

## **FOREIGN LANGUAGES AND LITERATURES**

*Faculty*—Jonathan B. Conant, Ph.D., Associate Professor and Head; Jean-Raymond Audet, D.M.L., Assistant Professor; Yolande Jenny, Ph.D., Associate Professor; Milan Kovacovic, D.A., Assistant Professor; George M. O'Brien, Ph.D., Associate Professor; Richard Seybolt, Ph.D., Assistant Professor; Harriet Viksna, Ph.D., Associate Professor

The department offers majors and minors for the B.A. and the B.A.A. degrees in French, German, and Spanish. Occasionally, courses in Latin, Ojibway, and Russian are also offered. See specific language headings for programs and offerings.

## **FRENCH (Fr)**

(Foreign Languages and Literatures Department)

Language programs are designed for the student seeking a traditional liberal education or intending to teach a foreign language. They also serve those who plan to pursue study in a graduate or professional school.



The following courses in language skills (reading, listening, speaking, writing) common to all majors and minors in French are:

**CORE PROGRAM**

Fr 1101-1102-1103—Beginning French I-II-III (15)

Fr 1201-1202-1203—Intermediate French (9)

Fr 3121-3122-3123—Advanced French (12)

**Total (36)**

Students without prior language preparation will normally complete the advanced skills sequence in the upper division.

A proficiency in French equivalent to that expected at the end of Fr 3123 may be demonstrated by examination or by documentation from another institution. This may eliminate the need for a student to take all or part of the lower division program and Advanced French in the upper division program.

**MAJOR IN FRENCH FOR THE B.A. DEGREE**

This degree program is designed for students seeking a traditional liberal education. It also serves those who plan to continue their education in graduate school or in a professional program such as library science or law.

**LOWER DIVISION PROGRAM**

**Required Major Courses (36)**

Core program (36)

**UPPER DIVISION PROGRAM**

**Required Major Courses (28)**

28 credit hours of upper division courses in French; with prior approval of the student's adviser, a maximum of 5 credits directly related to the student's program may be taken from other departments.

**Total for Major (64)**

A student majoring in French must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated.

**MAJOR IN TEACHING FRENCH FOR THE B.A.A. DEGREE (CE)**

This major is designed to prepare teachers of French for the secondary schools.

**LOWER DIVISION PROGRAM**

**Required Major Courses (38)**

Core program (36)

EdSe 1201—Orientation to Teaching, Phase I (2)

**Required Supporting Courses (5)**

Hi1h 1101—Personal Health (2)

Additional credits in physical education courses (3)

**UPPER DIVISION PROGRAM**

**Required Major Courses (46-60)**

EdSe 3101—Learning Theory Applications, Phase II (7)

EdSe 3202—Human Relations, Phase III (4)

EdSe 3301—Student Teaching, Phase IV (3-17)

EdSe 3401—The Teaching Profession, Phase V (4)

Fr 3152—Phonology, Morphology, and Syntax (4)

Lang 3801—Teaching Nonnative Language (4)

Plus 20 credit hours of upper division courses in French; with prior approval of the student's adviser, a maximum of 5 credits directly relevant to the student's program may be taken from other departments

**Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (91-105)**

A student majoring in French must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The B.A.A. candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. majors in French must complete student teaching in French for licensure.

## **MINOR IN FRENCH FOR THE B.A. DEGREE OR IN TEACHING FRENCH FOR THE B.A.A. DEGREE (CE)**

The minor is designed for those seeking to strengthen language skills in a liberal-education program or planning to teach French in the secondary schools.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (36)**

Core program (36)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (8)**

8 credit hours of upper division courses in French

**Total for Minor (44)**

A student taking a minor in French who intends to teach is urged to select Fr 3152, Phonology, Morphology, and Syntax, for 4 of the required upper division credits in French. Prospective teachers must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. minors in French must complete student teaching in French for licensure.

## **GEOGRAPHY (Geog)**

*Faculty*—Leverett P. Hoag, Ph.D., Professor and Head; John E. Adams, Ph.D., Associate Professor; Thomas W. Chamberlin, Ph.D., Professor, Matti E. Kaups, Ph.D., Professor; Gordon L. Levine, Ph.D., Assistant Professor; Frederick T. Witzig, Ph.D., Professor

The Department of Geography offers majors that provide professional and academic training for (a) career opportunities that are related to geography, (b) preparation for graduate work in geography, or (c) preparation for teaching geography in the secondary schools. The department also offers minors in geography for those in other fields who desire a secondary concentration in a related field. Most of the

courses offered by the department at both the lower and upper division levels satisfy liberal education needs. In addition, the department participates in a variety of interdisciplinary programs and courses.

Individual programs for geography majors require departmental approval. Students planning to major in geography are strongly urged to consult their adviser at the earliest possible date to plan their major program and to select supporting courses from related fields that will strengthen their major. Students considering graduate work in geography are especially urged to seek early advice concerning planning their undergraduate program.

## **MAJOR IN GEOGRAPHY FOR THE B.A. DEGREE**

The B.A. major in geography is designed basically to prepare students for graduate work in geography or for employment in jobs in government and industry that require techniques or knowledge of geography or are in some way closely related to geography, such as jobs in planning agencies, in cartographic agencies, in location analysis, in business and industrial research, or in a variety of other positions that can make use of this expertise.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (12)**

Geog 1303—Cultural Geography (4)

Geog 1312—Economic Geography (4)

Geog 1403—Physical Geography (4)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (42)**

Geog 3522—Introductory Cartography (4)

Geog 3591—Quantitative Methods (4)

Geog 3611—Field Techniques (4)

Geog 3802—Geographic Thought (4)

At least three topical courses from the following:

Geog 3103, 3323, 3324, 3331, 3341, 3392, 3412, 3422, 3531, 3541, 3552, 5401, and 5701

At least three regional courses from the following:

Geog 3111, 5116, 5133, 5172, 5174, 5182, 5201, 5211, 5222, and 5573

Additional credits in geography to total 42

**Total for Major (54)**

## **MINOR IN GEOGRAPHY FOR THE B.A. OR B.S. DEGREE**

The minor in geography provides an opportunity for students in other fields to develop a lesser concentration in a supporting field.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (12)**

Geog 1201—Man and His Habitat (4)

One of the following (4):

Geog 1303, 1305, or 1312

Geog 1403—Physical Geography (4)



## **UPPER DIVISION PROGRAM**

### **Required Minor Courses (16)**

At least two topical courses from the following:

Geog 3101, 3323, 3324, 3331, 3341, 3392, 3412, 3422, 3522, 3552, 5401, and 5701

At least two regional courses from the following:

Geog 3111, 5116, 5133, 5172, 5174, 5182, 5201, 5211, 5222, and 5573

Additional courses in geography, if necessary, to total 16

**Total for Minor (28)**

## **GEOLOGY (Geol)**

*Faculty*—Richard W. Ojakangas, Ph.D., Professor and Head; David G. Darby, Ph.D., Associate Professor; Donald M. Davidson, Jr., Ph.D., Professor; James A. Grant, Ph.D., Professor; John C. Green, Ph.D., Professor; Robert L. Heller, Ph.D., Professor; Ralph W. Marsden, Ph.D., Professor; Charles L. Matsch, Ph.D., Associate Professor; George R. Rapp, Jr., Ph.D., Professor

The Department of Geology provides four different programs for students interested in a variety of educational opportunities: training for a career as a professional geologist (which generally requires study on a graduate level); a broad liberal arts major program for those interested in earth science but not planning a professional career in geology (see Earth Science); a master of science program stressing original research as training for professional work or as a basis for further graduate study leading to the Ph.D. degree; and a major program designed for those interested in teaching earth science in secondary schools and earning the baccalaureate degree granted by the College of Education (see Earth Science).

Because of its location and personnel, the special interests of the department are focused on the geology of Precambrian rocks and on Quaternary geology and surficial processes. A required core of courses for all majors and minors includes Geol 1110 and 3310-3311-3312.

## **MAJOR IN GEOLOGY FOR THE B.S. DEGREE**

This program is designed to prepare students for professional work as geologists and for graduate study leading to advanced degrees.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (18)**

Geol 1110-Introductory Geology (5)

Geol 3310-3311-3312—Earth Materials I-II-III (13)

#### **Required Supporting Courses (30)**

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Math 1185—Pre-Calculus Analysis (5)

Math 1296-1297—Calculus I-II (10)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (41)**

Geol 3100—Geological Field Methods (3)

Geol 3200—Geomorphology (4)

Geol 3510-3511—Earth Structure I-II (8)

Geol 3600—Economic Geology (4)

Geol 5100—Field Geology (9)

Geol 5700—Paleontology (5)

Electives numbered 3000 or above in biology, chemistry, geology, mathematics, or physics courses (8)

**Required Supporting Courses** (18)

Math 1501—FORTRAN Programming (3)

Phys 1107-1108-1109—General Physics (15)

**Total for Major** (107)

Geol 5305, Optical Mineralogy, and a course in statistics are strongly recommended.

## **MINOR IN GEOLOGY FOR THE B.A. OR B.S. DEGREE**

### **LOWER DIVISION PROGRAM**

**Required Minor Courses** (18)

Geol 1110—Introductory Geology (5)

Geol 3310-3311-3312—Earth Materials I-II-III (13)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses** (8)

Electives in geology courses numbered 3000 or above (8)

**Total for Minor** (26)

## **GERMAN (Ger)**

(Foreign Languages and Literatures Department)

Language programs are designed for the student seeking a traditional liberal education or planning to teach a foreign language. They also serve those who plan to pursue further study in a graduate or professional school.

The following courses in language skills (reading, listening, speaking, writing) are common to all majors and minors in German:

### **CORE PROGRAM**

Ger 1101-1102-1103—Beginning German I-II-III (15)

Ger 1201-1202-1203—Intermediate German (9)

Ger 3121-3122-3123—Advanced German (12)

**Total** (36)

Students without prior language preparation will normally complete the advanced skills sequence in the upper division.

A proficiency in German equivalent to that expected at the end of Ger 3123 may be demonstrated by examination or by documentation from another institution. This may eliminate the need for a student to take all or part of the lower division program and Advanced German in the upper division program.

## **MAJOR IN GERMAN FOR THE B.A. DEGREE**

This degree program is designed for students seeking a traditional liberal education. It also serves those who plan to continue their education in graduate school or in a professional program such as library science or law.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (36)**

Core program (36)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (28)**

28 credit hours of upper division courses in German; with prior approval of the student's adviser, a maximum of 5 credits directly related to the student's program may be taken from other departments.

**Total for Major (64)**

A student majoring in German must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated.

## **MAJOR IN TEACHING GERMAN FOR THE B.A.A. DEGREE (CE)**

This major is designed to prepare teachers of German for the secondary schools.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (38)**

Core program (36)

EdSe 1201—Orientation to Teaching, Phase I (2)

#### **Required Supporting Courses (5)**

HLth 1101—Personal Health (2)

Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (46-60)**

EdSe 3101—Learning Theory Applications, Phase II (7)

EdSe 3202—Human Relations, Phase III (4)

EdSe 3301—Student Teaching Phase IV (3-17)

EdSe 3401—The Teaching Profession, Phase V (4)

Lang 3801—Teaching Nonnative Language (4)

Ling 3101—Introduction to Linguistics or equivalent linguistics course in German (4)

Plus 20 credit hours of upper division courses in German; with prior approval of the student's adviser, a maximum of 5 credits directly relevant to a student's program may be taken from other departments

#### **Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (91-105)**

A student majoring in German must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The B.A.A. candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. majors in German must complete student teaching in German for licensure.



## MINOR IN GERMAN FOR THE B.A. DEGREE OR IN TEACHING GERMAN FOR THE B.A.A. DEGREE (CE)

This minor is designed for those seeking to strengthen language skills in a liberal-education program or planning to teach German in the secondary schools.

### LOWER DIVISION PROGRAM

#### Required Minor Courses (36)

Core program (36)

### UPPER DIVISION PROGRAM

#### Required Minor Courses (8)

8 credit hours of upper division courses in German

**Total for Minor (44)**

A student taking a minor in German who intends to teach may substitute Ling 3101, Introduction to Linguistics, for 4 of the required upper division credits in German. Prospective teachers must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. minors in German must complete student teaching in German for licensure.

## HISTORY (Hist)

*Faculty*—Richard A. Morris, Ph.D., Associate Professor and Head; Roger A. Fischer, Ph.D., Associate Professor; Roy O. Hoover, Ph.D., Associate Professor; Ronald K. Huch, Ph.D., Associate Professor; Ellis Livingston, Ph.D., Professor; James F. Maclear, Ph.D., Professor; Ronald T. Marchese, Ph.D., Assistant Professor; Richard A. Morris, Ph.D., Associate Professor; Neil T. Storch, Ph.D., Associate Professor; Judith A. Trolander, Ph.D., Associate Professor

The course offerings in history are designed to help students increase their understanding of their own and other world cultures by examining the development of those cultures. Students are introduced to a variety of historical literature and source materials at all levels, with greater emphasis on research in the more specialized types of sources at the proseminar and seminar level. Independent study opportunities allow students to develop projects fitted to their interests and needs. The staff welcomes opportunities to assist students in the selection of courses.

**Advanced Placement**—With the permission of the major adviser, a student taking the B.A. or B.A.A. major in history may in some cases substitute 3000-level courses for part of the lower division requirement. The granting of such permission will depend upon high school preparation and performance in previous college courses. History courses at the 3000 level may not be taken during the freshman year and can be taken during the sophomore year only with the consent of the instructor.

**Honors Program for B.A. or B.A.A. Majors**—Participation in the honors program requires a grade point average of at least 3.25 in all history courses and at least 3.40 in upper division history courses, calculated separately. Successful completion of a sequence of 8 or more credits of a history proseminar or seminar course in which an honors-quality research paper is written is required. See the department head for further details.

## MAJOR IN HISTORY FOR THE B.A. DEGREE

This major is designed to introduce students to major world cultures and to provide experience in the critical use of historical literature and other source materials.

### LOWER DIVISION PROGRAM

#### **Required Major Courses** (22 or 24)

Two of the following sequences:

Hist 1054, 1055, 1056—Ancient Civilization (12)

Hist 1154, 1155—English History (10)

Hist 1204, 1205, 1206—Introduction to Modern Europe (12)

Hist 1301, 1302, 1303—American History (12)

### UPPER DIVISION PROGRAM

#### **Required Major Courses** (27 or 29)

Hist 3003—Historical Research (5) (recommended for junior year)

Additional electives in history courses numbered 3000 or above; must include two sequences of 8 or more credits each, chosen from two of the following areas (for this purpose Hist 3326 and 3327 may be considered a sequence): American history, European history, Far Eastern or Latin American history (22 or 24, depending on the number of lower division credits)

#### **Total for Major** (51)

The department strongly recommends the study of a foreign language, especially for students who are considering graduate work in history. It also strongly recommends that history majors discuss with their adviser the selection of elective courses from other areas, as an aid in the development of a coherent program.

## MINOR IN HISTORY FOR THE B.A. OR B.S. DEGREE

This minor is designed to provide basic competence in the field and support for related majors.

### LOWER DIVISION PROGRAM

#### **Required Major Courses** (10 or 12)

One of the following sequences:

Hist 1154, 1155—English History (10)

Hist 1204, 1205, 1206—Introduction to Modern Europe (12)

Hist 1301, 1302, 1303—American History (12)

### UPPER DIVISION PROGRAM

#### **Required Major Courses** (18 or 20)

Additional electives in history courses numbered 3000 or above; must include two sequences of 8 or more credits each, chosen from two of the following areas (for this purpose Hist 3326 and 3327 may be considered a sequence): American history, European history, Far Eastern or Latin American history (18 or 20, depending on the number of lower division credits)

#### **Total for Minor** (30)

## HUMANITIES (Hum)

Adviser—Schroeder (Engl)

## **MINOR IN HUMANITIES FOR THE B.A. DEGREE, OR B.A.A. DEGREE (CE)**

The primary purposes of the humanities program are to acquaint the student with a wide variety of expressions of the human mind and spirit as they appear in the arts, literary sources, and historical documents; to aid the student in developing skills for the analysis of such human expressions; and to provide the student with experiences in interdisciplinary inquiry and using the various expressive arts to investigate some of the basic concerns of humankind.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (9)**

Hum 1001—Introduction to Humanism (3)

Hum 1002—Introduction to Humanism (3)

Hum 1003—Introduction to Humanism (3)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (24)**

Hum 3091—Project in Humanities (2)

Other humanities courses (22)

**Total for Minor (33)**

## **INTERDISCIPLINARY STUDIES (IS)**

See pages 44-45.

## **JOURNALISM (Jour)**

(English Department)

See the Communications minor.

## **LATIN (Lat)**

(Foreign Languages and Literatures Department)

## **LIFE SCIENCE**

*Adviser*—Ahlgren (Biol)

## **MAJOR IN TEACHING LIFE SCIENCE FOR THE B.A.S. DEGREE (CE)**

(Subject to approval of the Board of Regents)

This program meets the new licensure requirements of the Minnesota Board of Teaching that become effective July 1, 1979. This program should be followed by students who intend to seek licensure after this date to teach biological sciences at the high school level.



## **LOWER DIVISION PROGRAM**

### **Required Major Courses (22)**

Biol 1012—Human Anatomy  
(or) Biol 5517—Comparative Anatomy of Vertebrates (5)  
Biol 1042—Human Physiology  
(or) Biol 5541—Animal Physiology: Internal Communication (5)  
Biol 1109-1110—General Biology (10)  
EdSe 1201—Phase I: Orientation to Teaching (2)

### **Required Supporting Courses (29 or 30)**

Chem 1103-1104—General Chemistry or approved substitute (10)  
Chem 1500—Organic Chemistry or approved substitute (5)  
Geol 1110—Introductory Geology (5)  
Hlth 1101—Personal Health (2)  
Math 1160—Calculus, A Short Course (4)  
(or) Math 1185—Calculus Analysis (5)  
Electives in physical education (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (62)**

Biol 3153—Principles of Genetics (3)  
Biol 3243—Cellular Biology (5)  
Biol 3773—General Ecology Lecture (3)  
Biol 3774—General Ecology Laboratory (2)  
Biology electives to include two courses in plant science (17)  
EdSe 3101—Phase II: Learning Theory Applications (7)  
EdSe 3202—Phase III: Human Relations (4)  
EdSe 3233—Teaching Science-Secondary (3)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)

### **Required Supporting Courses (16)**

Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)  
Educ 3234—Science, Technology, and Society (3)  
Geol 3120—Geology of North America (3)  
Hum 3051—Science and Civilization (4)  
Earth science elective to be chosen from the following:  
    Geol 3150—Environmental Geology (4)  
    Geol 3131—Oceanography (4)  
    Geol 3200—Geomorphology (4)  
    Geog 3412—Weather Elements (4)

**Total for Major (129 or 130)**

## **MINOR IN TEACHING LIFE SCIENCE FOR B.A.S. DEGREE (CE)**

### **LOWER DIVISION PROGRAM**

#### **Required Courses (10)**

Biol 1109-1110—General Biology (10)

#### **Required Supporting Courses (9 or 10)**

Chem 1500—Organic Chemistry or approved substitute (5)  
Math 1160—Calculus, A Short Course (4)  
(or) Math 1185—Pre-Calculus or approved substitute(s) (5)

## UPPER DIVISION PROGRAM

### Required Courses (20)

Biol 3153—Principles of Genetics (3)

Biol 3243—Cellular Biology (5)

Biol 3773—General Ecology Lecture (3)

Electives in biology courses numbered 3000 or above (9)

**Total for Minor** (39 or 40)

## LINGUISTICS (Ling)

(English Department)

*Faculty*—Hols (Engl), Coordinator; Detlefsen (Phil); Hatten (CD); Huntley (Spch); Katz (Spch); Kovacovic (Fr); Krossner (Psy); Jankofsky (Engl); Pierce (CD); Powless (Amln)

The program in linguistics is interdisciplinary in nature and is designed for those for whom a specialized study of language will provide a supplement to the work in their major field. Areas of interest overlap in anthropology, communication, communicative disorders, education, English, languages, philosophy, psychology, and sociology. The program offers a minor in linguistics and a variety of courses in the field.

## MINOR IN LINGUISTICS FOR THE B.A. DEGREE

In addition to strengthening a student's understanding of that part of his or her major field that relates to language, holding this minor may be a favorable factor in seeking employment.

Required for the minor are 30 credits in core and related courses (listed below), of which a minimum of 20 credits must be earned from the list of core courses. It is recommended that Ling 3101, Introduction to Linguistics, be one of the first courses taken.

### CORE COURSES

CD 1990—Introduction to Phonetics (4)

Engl 1811—Introduction to Language (4)

Engl 5811—Introduction to Modern English (4)

Engl 5821—History of the English Language (4)

Engl 5831—Sociolinguistics (4)

Engl 5841—Practical Classroom Linguistics (4)

Engl 5851—Practicum in Teaching Linguistics (2)

Ling 3101—Introduction to Linguistics (4)

Ling 3590—Independent Study in Linguistics (1-4) (may be repeated for a maximum of 8 cr)

Psy 3661—Psycholinguistics (4)

### RELATED COURSES

Amln 1101-1102—Beginning Chippewa (10)

CD 5110—Normal Language Development (4)

CD 5210—Language Disorders in Children (4)

Engl 3521—Old English Language and Literature (4)

Engl 5311—Chaucer (5)

Engl 5930—Methods, Practicum in TESL (4)

Fr 3152—Phonology, Morphology, and Syntax (4)  
Phil 1009—Principles of Right Reasoning (4)  
Phil 3651—Symbolic Logic (4)  
Span 3152—Phonology, Morphology, and Syntax (4)  
Spch 1202—Interpersonal Communication (3)  
Spch 3202—Foundations of Communication Theory (3)

## MATHEMATICAL SCIENCES (Math)

*Faculty*—James L. Nelson, Ph.D., Associate Professor and Head; Duane E. Anderson, M.A., Assistant Professor; Sabra S. Anderson, Ed D., Associate Professor; George H. Bridgman, Ph.D., Lecturer; Sylvan D. Burgstahler, Ph.D., Professor; Thomas K. Chambers, M.S., Lecturer; Roger D. Coleman, Ph.D., Assistant Professor; Joseph A. Gallian, Ph.D., Associate Professor; Mark A. Luker, Ph.D., Assistant Professor; William R. McEwen, Ph.D., Professor; Michael F. Miller, Ph.D., Assistant Professor; Grace C. Peterson, B.S., Assistant Professor; James A. Pollock, M.A., Lecturer; Kim T. Rawlinson, Ph.D., Assistant Professor

The Department of Mathematical Sciences seeks to help students develop competence in mathematical techniques and sharpen their mathematical insight; to prepare students for advanced study in graduate school and for careers in business, industry, and government; and to provide a sound background for prospective teachers.

The following core program is required of all mathematics majors and minors for the B.A. and B.S. degrees.

### REQUIRED MATHEMATICS CORE

Math 1296—Calculus I (5)  
Math 1297—Calculus II (5)  
Math 1501—FORTRAN Programming (3)  
Math 3298—Calculus III (5)  
Math 3320—Vectors and Matrices (4)

**Total** (22)

Students may arrange alternative core programs with other credit requirements with the department. Competency in computer programming in languages other than FORTRAN may be substituted for Math 1501, and competency in vectors and matrices obtained in a calculus sequence may be substituted for Math 3320, upon approval of the department. Additional requirements for various majors and minors follow.

## MAJOR IN MATHEMATICS FOR THE B.A. DEGREE

This major is designed for students wishing a liberal arts degree in mathematics.

### LOWER DIVISION PROGRAM

**Required Major Courses** (27)  
Required core (22)  
Math 3350—Calculus IV (5)

### UPPER DIVISION PROGRAM

**Required Major Courses** (31)  
Math 3670—Abstract Algebra I (4)



Math 3699—Intermediate Analysis (4)

Math 3931—Project for Majors (1)

Electives in mathematics courses numbered above 3030 and excluding 3561, 3565, 5560 and any courses not open to majors (22)

All B.A. majors must take two sequences, at least one of which must be Math 5701-5702—Advanced Calculus I and II or Math 5671-5672—Abstract Algebra II and III. Other acceptable sequences are:

Math 5730-5731-5732—Applied Mathematics I, II, and III

Math 5590-5591-5598—Mathematical Probability, Statistical Inference, Stochastic Processes

Math 5530-5531—Numerical Computing

Math 5526-5540-5541—Computers and Computer Languages

**Total for Major (58)**

Students considering graduate work in the mathematical sciences are advised that certain courses are essential to particular graduate degree programs. These students should discuss with their adviser about the selection of appropriate elective courses.

## MINOR IN MATHEMATICS FOR THE B.A. DEGREE

Ten credits in mathematics courses beyond the core program selected from among courses numbered above Math 3320 and excluding Math 3565. Students should consult with their adviser about the selection of appropriate electives.

**Total for Minor (32)**

## MAJOR IN MATHEMATICS FOR THE B.S. DEGREE

There are three options for the B.S. degree in mathematics. The first is the professional program in mathematics for those planning careers in industry, the second for those planning careers in actuarial science, and the third for those planning careers in computing.

**OPTION 1** (for careers in industry)

### LOWER DIVISION PROGRAM

**Required Major Courses (32)**

Required core (22)

Math 3350—Calculus IV (5)

Math 3380—Differential Equations I (5)

### UPPER DIVISION PROGRAM

**Required Major Courses (29)**

Math 3699—Intermediate Analysis (4)

Math 3931—Project for Majors (1)

Math 5530—Numerical Analysis (4)

Math 5590—Mathematical Probability (3)

Math 5730—Applied Mathematics I (3)

Electives in mathematics courses numbered above 3030 and excluding 3561 and 3565 (14)

**Total for Major (61)**

Majors selecting this option should consider taking Math 5731-5732—Applied Mathematics II-III, Math 5591-5598—Statistical Inference and Stochastic Processes, and Math 5526-5531—Data Structures and Numerical Linear Algebra.

**OPTION 2** (for careers in actuarial science)

**LOWER DIVISION PROGRAM**

**Required Major Courses** (32)

Required core (22)

Math 3350—Calculus IV (5)

Math 3380—Differential Equations (5)

**UPPER DIVISION PROGRAM**

**Required Major Courses** (29)

Math 3699—Intermediate Analysis (4)

Math 3931—Project for Majors (1)

Math 5590—Mathematical Probability (3)

Math 5591—Statistical Inference (3)

Math 5598—Stochastic Processes (3)

Math 5970—Special Topics (3)

Electives in mathematic courses numbered above 3030 and excluding 3561 and 3565 (12)

**Total for Major** (61)

**OPTION 3** (for careers in computer science)

**LOWER DIVISION PROGRAM**

**Required Major Courses** (36)

Required core (22)

Math 3350—Calculus IV (5)

Math 3380—Differential Equations (5)<sup>1</sup>

**UPPER DIVISION PROGRAM**

**Required Major Courses** (28)

Math 3699—Intermediate Analysis (4)

Math 3670—Abstract Algebra I (4)

Math 3931—Project for Majors (1)

Math 5526—Data Structures (3)

Math 5530—Numerical Analysis

(or) Math 5531—Numerical Linear Algebra (4)

Math 5540—Comparative Programming Languages (3)

Math 5541—Computer Systems (3)

Electives in mathematics courses numbered above 3030 and excluding 3561 and 3565 (6)

**Total for Major** (64)

Majors selecting this option should consider taking both Math 5530—Numerical Analysis and Math 5531—Numerical Linear Algebra as well as Math 5590—Mathematical Probability and Math 5591—Statistical Inference.

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<sup>1</sup>Linear Algebra (5326) may be used instead of Differential Equations.

## MINOR IN MATHEMATICS FOR THE B.S. DEGREE

Ten credits beyond the core program selected from courses numbered above Math 3320 and excluding Math 3565. Students should consult with their adviser about the selection of appropriate electives.

**Total for Minor (32)**

## MAJOR IN TEACHING MATHEMATICS FOR THE B.A.S. DEGREE (CE)

This major is designed to prepare mathematics teachers for secondary schools.

### LOWER DIVISION PROGRAM

#### **Required Major Courses (17)**

Math 1296—Calculus I (5)

Math 1297—Calculus II (5)

Math 3298—Calculus III (5)

EdSe 1201—Phase I: Orientation to Teaching (2)

#### **Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)

Additional credits in physical education courses (3)

The following lower division courses are strongly recommended as electives: Chem 1103, 1104; Econ 1004, 1005; Ind 1501, 1511; Phil 1009; Phys 1107, 1108.

### UPPER DIVISION PROGRAM

#### **Required Major Courses (63)**

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3222—Teaching Mathematics-Secondary (3)

EdSe 3301—Phase IV: Students Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

Additional credits in mathematics courses numbered above 3030 and excluding 3561 and 3565 (6)

Math 3240—Fundamentals of Mathematics (2)

Math 3320—Vectors and Matrices (4)

Math 3441—Contemporary Geometry (4)

Math 3470—Advanced Topics for Teachers (3)

Math 3670—Modern Algebra I (4)

Math 3699—Intermediate Analysis (4)

Math 3931—Project for Majors (1)

Math 5590—Mathematical Probability (3)

#### **Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (87)**

The following upper division courses are strongly recommended as electives: Biol 3153; Ind 3512; Phil 3651, 5560; Phys 3080; EdSe 5225.

Before entering the upper division a student must demonstrate a minimum level of computer *programming* proficiency in BASIC or FORTRAN.



## MINOR IN TEACHING MATHEMATICS FOR THE B.A.S. DEGREE (CE)

This minor is designed for students who plan to teach mathematics part time in secondary schools.

### LOWER DIVISION PROGRAM

#### Required Minor Courses (15)

Math 1296-1297—Calculus I and II (10)

Math 3298—Calculus III (5)

### UPPER DIVISION PROGRAM

#### Required Minor Courses (17)

EdSe 3222—Teaching Mathematics-Secondary (3)

Math 3320—Vectors and Matrices (4)

At least two courses from the following:

Math 3240, 3441, 3670, 5590

Additional credits in Math courses numbered above 3298 (10)

#### Total for Minor (32)

A minimum level of computer *programming* proficiency in BASIC or FORTRAN must be demonstrated.

This minor can only be taken by students pursuing a B.A.A. or B.A.S. degree with a licensure-related major. Licensure with minors is limited.

## PHILOSOPHY (Phil)

*Faculty*—Robert H. Evans, Ph.D., Associate Professor and Head; Michael Detlefsen, Ph.D., Assistant Professor; Henry J. Ehlers, Ph.D., Professor Emeritus; Richard Hudelson, Ph.D., Assistant Professor; Loren E. Lomasky, Ph.D., Visiting Assistant Professor; David J. Mayo, Ph.D., Assistant Professor

The Department of Philosophy strives to help students learn the art of critical thinking and acquire a significant understanding of the philosophies that shape our world. Critical thinking involves the use of logic, skepticism, and the abilities to handle abstract theories and present good arguments; consequently, the department offers a variety of educational experiences aimed at helping students acquire these skills as well as offers courses in the histories of Western and non-Western, traditional and modern philosophies. Because of the diverse nature of philosophy, because of the interrelations between philosophy and other areas of study, and because philosophical problems often are by their nature transdisciplinary, the department encourages students to explore the interrelations between the many realms of knowledge.

**Honors Program**—Candidates must be philosophy majors with a grade point average of 3.25 in all philosophy courses. Each student must complete 4 credit hours of work in Phil 5990, plus a substantial paper written in Phil 5990 or another philosophy course. The paper must be presented orally in a departmental colloquium. See the department head for further details.

## MAJOR IN PHILOSOPHY FOR THE B.A. DEGREE

The major program in philosophy is designed to acquaint the student with major figures and problems, both traditional and contemporary, in our philosophical heritage and to help the student develop strong skills in critical thinking.

## **LOWER DIVISION PROGRAM**

### **Required Major Courses (8)**

Phil 1001—Problems of Philosophy (4)

Phil 1009—Principles of Right Reasoning

(or) Phil 3651—Symbolic Logic (4)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses (32)**

Phil 3301—Greek Philosophy (4)

Phil 3303—The Birth of Modern Philosophy (4)

Two courses selected from (8):

Phil 3110—American Philosophy (4)

Phil 3114—Logical Empiricism and Analysis (4)

Phil 3124—Contemporary Continental Philosophy (4)

Phil 3302—Philosophy of the Middle Ages (4)

Phil 3304—Romanticism and Alienation (4)

Any elective courses in philosophy<sup>1</sup> (16)

**Total for Major (40)**

## **MINOR IN PHILOSOPHY FOR THE B.A. OR B.S. DEGREE**

The program for the minor in philosophy is designed to acquaint the student with major figures and problems in our philosophical heritage and to help the student develop a capacity for critical thinking.

## **LOWER DIVISION PROGRAM**

### **Required Minor Courses (8)**

Any elective courses in philosophy<sup>1</sup> (8)

## **UPPER DIVISION PROGRAM**

### **Required Minor Courses (16)**

Upper division elective courses in philosophy (16)

**Total for Minor (24)**

## **PHYSICAL SCIENCE**

*Advisers*—Likely (Phys), Thompson (Chem)

## **MAJOR IN TEACHING PHYSICAL SCIENCE FOR THE B.A.S. DEGREE (CE)**

(Subject to approval by the Board of Regents)

This program meets the new requirements for licensure of the Minnesota Board of Teaching that become effective July 1, 1979. This program should be followed by students who intend to seek licensure after this date to teach physical science (i.e., chemistry and physics) at the high school level.

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<sup>1</sup>The electives in philosophy for majors and minors may be either upper or lower division courses; however, majors must have at least 27 credits in upper division courses. Normally a student minoring in philosophy would fulfill part of this requirement with lower division electives.

## **LOWER DIVISION PROGRAM**

### **Required Major Courses** (47 or 52)

Chem 1110-1111-1112 (or) 1130-1131-1132—General Chemistry (15)

Chem 1500—Organic Chemistry (5)

(or) Chem 3512-3513—Organic Chemistry (10)

Chem 3210—Introductory Quantitative Analysis (5)

Phys 1107-1108-1109—General Physics (15)

Phys 3070—Physics Laboratory (1)

Phys 3080—Dynamics (4)

EdSe 1201—Phase I: Orientation to Teaching (2)

### **Required Supporting Courses** (30)

Biol 1109-1110—General Biology (10)

Geol 1110—Introductory Geology (5)

Hlth 1101—Personal Health (2)

Math 1296-1297—Calculus I and II (10)

Electives in physical education (3)

## **UPPER DIVISION PROGRAM**

### **Required Major Courses** (38)

Electives in chemistry and/or physics numbered 3000 or above (6)

EdSe 3101—Phase II: Learning Theory Applications (7)

EdSe 3202—Phase III: Human Relations (4)

EdSe 3233—Teaching Science-Secondary (3)

EdSe 3301—Phase IV: Student Teaching (14)

EdSe 3401—Phase V: The Teaching Profession (4)

### **Required Supporting Courses** (15)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

Educ 3234—Science, Technology, and Society (3)

Geol 3120—Geology of North America (3)

Hum 3051—Science and Civilization (4)

Electives in earth science (3)

**Total for Major** (130 or 135)

## **PHYSICS (Phys)**

*Faculty*—Howard G. Hanson, Ph.D., Professor and Head; Bo R. Casserberg, Ph.D., Associate Professor; Thomas F. Jordan, Ph.D., Professor; John L. Kroening, Ph.D., Associate Professor; J. Gordon Likely, Jr., M.A., Assistant Professor; Lewis J. Oakland, M.S., Assistant Professor; Donald E. Olson, M.S., Professor; Michael Sydor, Ph.D., Professor

The Department of Physics offers course work required for several preprofessional programs including engineering and medicine. Majors in physics suitable for liberal arts programs and professional physics programs are offered. Graduate work leading to an M.S. degree (Plan A) is also available. (see section on the Graduate School).

The following courses constitute the required core for majors and minors in physics:

### **REQUIRED PHYSICS CORE**

Phys 1107-1108-1109—General Physics (15)



Phys 3070—Physics Laboratory (1)  
Phys 3080-3081—Dynamics, Electricity and Magnetism (8)  
**Total (24)**

## MAJOR IN PHYSICS FOR THE B.S. DEGREE

This program is intended for those planning to work toward an advanced degree in physics.

### LOWER DIVISION PROGRAM

#### **Required Major Courses (28)**

Required core (24)  
Phys 3085—Electrical Networks (4)

#### **Required Supporting Courses (30)**

Chem 1110-1111 (or) 1130-1131—General Chemistry (10)  
Math 1296—Calculus I (5)  
Math 1297—Calculus II (5)  
Math 3298—Calculus III (5)  
Math 3380—Differential Equations I (5)

### UPPER DIVISION PROGRAM

#### **Required Major Courses (32)**

Phys 3099—Seminar (1)  
Phys 5101-5102-5103—Modern Physics (12)  
Phys 5107—Thermal Physics (4)  
Phys 5126—Theoretical Mechanics (3)  
Phys 5127—Mathematical Physics (3)  
Phys 5128—Electromagnetic Theory (3)  
Electives in physics courses numbered 3000 or above (6)

**Total for Major (90)**

## MAJOR IN PHYSICS FOR THE B.A. DEGREE

This program is intended for those who wish a liberal arts degree.

### LOWER DIVISION PROGRAM

#### **Required Major Courses (28)**

Required core (24)  
Phys 3085—Electrical Networks (4)

#### **Required Supporting Courses (20)**

Math 1296—Calculus I (5)  
Math 1297—Calculus II (5)  
Math 3298—Calculus III (5)  
Math 3380—Differential Equations I (5)

In addition, Chem 1110-1111, or 1130-1131, General Chemistry (10), is strongly recommended.

### UPPER DIVISION PROGRAM

#### **Required Major Courses (22)**

Phys 3099—Seminar (1)  
Phys 5101-5102-5103—Modern Physics (12)

Electives in physics courses numbered 3000 or above (9)

**Total for Major (70)**

## **MINOR IN PHYSICS FOR THE B.A. OR B.S. DEGREE**

This program is intended for those who wish to complete a minor in physics for liberal arts or professional purposes.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (24)**

Required core (24)

**Required Supporting Courses (20)**

Math 1296—Calculus I (5)

Math 1297—Calculus II (5)

Math 3298—Calculus III (5)

Math 3380—Differential Equations I (5)

### **UPPER DIVISION PROGRAM**

**Required Major Courses (6)**

Electives in physics courses numbered 3000 or above (6)

**Total for Minor (50)**

## **MINOR IN TEACHING PHYSICS FOR THE B.A.S. DEGREE (CE)**

This program is designed for persons whose major is in teaching a science other than physics.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (15)**

Phys 1107-1108-1109—General Physics (15)

**Required Supporting Courses (10)**

Math 1296-1297—Calculus I and II (10)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (9)**

Phys 3070—Physics Laboratory (1)

Phys 3080—Dynamics (4)

Electives in physics courses numbered 3000 or above (4)

**Total for Minor (34)**

## **POLITICAL SCIENCE (PoI)**

*Faculty*—Gerhard E. von Glahn, Ph.D., Professor and Head; Craig H. Grau, Ph.D., Assistant Professor; John H. Kress, Ph.D., Assistant Professor; M. Harry Lease, Jr., Ph.D., Professor; Dale W. Olsen, Ph.D., Associate Professor; Dennis D. Riley, Ph.D., Assistant Professor; Julius F. Wolff, Jr., Ph.D., Professor

The Department of Political Science furnishes general instruction, as a liberal education function, in major areas of political science to students majoring in other

disciplines, offers majors and minors to prepare students for graduate-level programs, the study of law, or service in governmental agencies; and provides a related field for other graduate programs offered at UMD. Many of the department's courses are required for the urban studies program.

## MAJOR IN POLITICAL SCIENCE FOR THE B.A. DEGREE

The major in political science is designed to prepare students for graduate-level work in the discipline, the study of law, or service in government agencies at various levels.

### LOWER DIVISION PROGRAM

#### Required Major Courses (12)

Pol 1011—American Government and Politics (4)  
Pol 1050—International Relations (4)  
Pol 1100—Introduction to Political Science  
(or) Pol 1500—Contemporary Political Systems (4)

### UPPER DIVISION PROGRAM

#### Required Major Courses (39)

Completion of at least 36 credits in upper division courses in political science (courses numbered 3000 or above).

Of this minimum of 36 credits in upper division courses, a major must take at least 8 credits in each of three areas of concentration. Upper division courses are divided into the following areas (\* denotes that the course may be used in that area if the topic covered falls within the area subject matter):

1. American Governmental Systems and Processes: Pol 3020, 3030, 3060, 3080, 3099, 3110, 3111, 3160, 3220, 3310, 3710, 3902\*, 5170, 5320, 5330, 5340, 5350, 5704\*, 5740, 5902\*.
2. Comparative Government, International Law, International Relations: Pol 3410-3411, 3412, 3450, 3510, 3512, 3516, 3520, 3530, 3902\*, 5704\*, 5902\*.
3. Political Theory: Pol 3902\*, 5650, 5652, 5653, 5655, 5657, 5704\*, 5902\*, and Math 3561.

Each major must, *in addition*, take one of the 3-credit seminars.

#### Total for Major (51)

**Graduate Study Recommendation**—The department strongly recommends that majors in political science anticipating graduate training in the field take a year of college-level mathematics and 2 years (or demonstration of equivalent proficiency) in a modern foreign language.

## MINOR IN POLITICAL SCIENCE FOR THE B.A. OR B.S. DEGREE

The minor in political science offers students a less specialized background in the political sphere and is designed to supplement major programs in related disciplines and promote political awareness as an individual citizen.

### LOWER DIVISION PROGRAM

#### Required Minor Course (4)

Pol 1011—American Government and Politics (4)



### UPPER DIVISION PROGRAM

Twenty-four credits in political science courses, including at least 20 credits in courses numbered 3000 or above. Pol 1050, 1100, or 1500 may be used in partial fulfillment of the requirement for the minor. The upper division courses must be taken in at least two of the areas of concentration listed above under the requirements for the major, with not less than 8 credits in any one area of concentration (24).

**Total for Minor (28)**

### RUSSIAN (Russ)

(Foreign Languages and Literatures Department)

### SCIENCE (Sci)

Adviser—McEwen (Math)

### MINOR IN SCIENCE FOR THE B.A. OR B.S. DEGREE

The minor consists of a minimum of 35 credits in College of Letters and Science courses. Although the several options are designed specifically to meet the needs of majors in the College of Letters and Science, they are open to any student.

#### OPTION I (for biology majors)

Chem 1103-1104 (or) 1110-1111 (or) 1130-1131—General Chemistry (10)

Chem 1500—Organic Chemistry (5)

(or) Chem 3512-3513—Organic Chemistry (10)

Math electives—5 to 15 credits selected from 1110, 1185, 1296 or 1297, 3298

Phys 1001-1002, 1003—Elementary Physics (12)

Phys 1107-1108-1109—General Physics (15)

**Total (35 minimum)**

#### OPTION II (for chemistry majors)

Math 1185—Pre-Calculus Analysis (5)

Math 1296-1297—Calculus I and II (10)

Math 3298—Calculus III (5)

Math 3320—Vectors and Matrices (4)

Phys 1107-1108-1109—General Physics (15)

**Total (39)**

#### OPTION III (for geology majors)

Chem 1110-1111 (or) 1130-1131—General Chemistry (10)

Math 1185—Pre-Calculus Analysis (5)

Math 1296-1297—Calculus I and II (10)

Math 1501—FORTRAN Programming (3)

Phys 1107-1108-1109—General Physics (15)

**Total (43)**

#### OPTION IV (for mathematics majors)

Chem 1110-1111 (or) 1130-1131—General Chemistry (10)

Phys 1107-1108-1109—General Physics (10)

Courses in science or mathematics approved by major adviser (15)

**Total (35)**

## **SOCIAL SCIENCE (SSci)**

*Advisers*—Department heads in the social sciences (economics, geography, history, political science, sociology)

### **MAJOR IN SOCIAL SCIENCE FOR THE B.A. DEGREE**

This program is designed for students who have an educational goal that cannot be met within traditional discipline-related majors. During the first quarter of the junior year the student will plan the major program and secure approval of this program from the Social Science Degree Committee. The program must include a minimum of 28 credits in upper division courses, and the majority of its credits must be taken in courses within the social sciences (other credits may be selected from any discipline).

**Total** (60)

### **MAJOR IN TEACHING SOCIAL STUDIES FOR THE B.A.A. DEGREE (CE)**

(Subject to approval by the Board of Regents)

This major is designed to prepare social studies teachers for secondary schools.

After June 30, 1979, new applicants for a license to teach social studies in the secondary schools of Minnesota must complete a program that includes work in anthropology, economics, geography, history, political science, psychology, and sociology. Teaching majors or minors in geography, history, sociology, or the former social science programs will not qualify students for licensure after that date.

#### **LOWER DIVISION PROGRAM**

##### **Required Major Courses** (62)

8 credits from each of seven disciplines (56)

Interdisciplinary studies (4)

EdSe 1201—Phase I: Orientation to Teaching (2)

##### **Required Supporting Courses** (5)

Hi1h 1101 (2)

Physical education (3)

#### **UPPER DIVISION PROGRAM**

##### **Required Major Courses** (76)

Electives from 3000-level or above courses with a minimum of 28 credits in one discipline and a minimum of 16 additional credits chosen from at least two additional disciplines (44)

EdSe 3101—Teacher Education, Phase II (7)

EdSe 3202—Teacher Education, Phase III (7)

EdSe 3301—Teacher Education, Phase IV (14)

EdSe 3401—Teacher Education, Phase V (4)

##### **Required Supporting Courses** (2)

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major** (145)

For specific course requirements, see programs listed below under the particular study fields; i.e., anthropology, economics, geography, history, political science, psychology/sociology

## **Anthropology Concentration**

### **OPTION I Program (5 or 10 cr minimum)**

Required: Anth 1604—Cultural Anthropology (5)

Required or recommended (depending on the decision of the committee): Anth 1602—Prehistoric Man and Culture (5)

### **OPTION II Program (26)**

#### **LOWER DIVISION**

Anth 1602—Prehistoric Man and Culture (5)

Anth 1604—Cultural Anthropology (5)

#### **UPPER DIVISION**

8 credits from 3000-level anthropology courses

8 credits from 5000-level anthropology courses

### **OPTION III Program (41)**

#### **LOWER DIVISION**

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Anth 1602—Prehistoric Man and Culture (5)

Anth 1604—Cultural Anthropology (5)

#### **UPPER DIVISION**

Anth 5626—Development of Anthropology Theory (4)

8 credits from 3000-level anthropology courses

12 credits from 5000-level anthropology courses

## **Economics Concentration**

### **LOWER DIVISION PROGRAM**

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Econ 1203—Statistical Methods (required only if student chooses economics as his or her major area of concentration or as one of two supporting areas) (4)

### **UPPER DIVISION PROGRAM**

Econ 3111—Microeconomic Analysis (5)

Econ 3112—Macroeconomic Analysis (5)

Electives in economics that have been approved by the department head (20)

30 credits for the economics concentration

5 to 10 credits required for the 16-credit requirement other than the 28-credit concentration

1. If only 5 credits are from economics, Econ 3111 *or* 3112.

2. If 5-10 credits are from economics, Econ 3111 *and* 3112.



## Geography Concentration

### LOWER DIVISION

Geog 1303—Cultural Geography (4)

Geog 1403—Physical Geography (4)

28 additional credits for geography concentration in the major

Geog 3412—Weather Elements (4)

Geog 3611—Field Techniques (4)

Geog 3802—Geographic Thought (4)

Geog 5116—Anglo-America (5)

One other regional course (3-4)

One topical cultural course from the following: 3103, 3392, 5701 (4)

One topical economic course from the following: 1312, 3323, 3324, 3331, 3341 (3-4)

4 to 12 credits required for the 16-credit requirement from two disciplines other than the 28-credit concentration

If 4 credits only are from geography, they should be from one of the topical cultural or economic courses listed above. If 8 credits are from geography, they should be from one course in each of these two groups. If 12 credits are from geography, they should include one course in each of the two groups plus one elective course in geography approved by the adviser.

## History Concentration

### LOWER DIVISION PROGRAM

The 8 credits taken at the lower division level may be selected from any of the survey sequences. Selections are not restricted to one sequence or to consecutive quarters in a sequence.

Hist 1054, 1055, 1056—Ancient Civilization (12)

Hist 1154, 1155—English History (10)

Hist 1204, 1205, 1206—Introduction to Modern Europe (12)

Hist 1301, 1302, 1303—American History (12)

### UPPER DIVISION PROGRAM

Students taking the 28-credit concentration in upper division history may choose from the following list of courses. No more than 12 credits may be taken in any one group. Hist 3003—Historical Research is particularly encouraged.

#### Group I: General

Hist 3003—Historical Research (5)

Hist 3011—Independent Study (3)

#### Group II: American History

Hist 3314, 3315—19th-Century America (8)

Hist 3326—Modern American Reform Movements (5)

Hist 3327—United States at War: 20th Century (5)

Hist 3357—Women in American History (4)

Hist 3358, 3359—American Social History (8)

Hist 3361—The American City (4)

Hist 3366—Afro-American History (5)

Hist 3374, 3375—Growth of American Thought (8)

Hist 3394, 3395—The American West (8)

Hist 5350, 5351—Minnesota and the Upper Midwest (8)

Hist 5376, 5377—The American South (8)

Hist 5384, 5385—American Foreign Relations (8)

**Group III: European History**

- Hist 3103—History of the Middle Ages (4)
- Hist 3164, 3165—English Constitutional History (8)
- Hist 3216, 3217—The European Revolutions, 1774-1871 (8)
- Hist 3233—Modern France (5)
- Hist 3264, 3265—History of Russia (8)
- Hist 3280—Church and State in Modern Europe (3)
- Hist 5124, 5125, 5126—Renaissance and Reformation (12)
- Hist 5225, 5226, 5227—Recent Europe (12)

**Group IV: Latin American and the Far East**

- Hist 3404, 3405—History of Latin America (10)
- Hist 3457, 3458—Far East (10)

**Political Science Concentration**

**LOWER DIVISION PROGRAM**

- Pol 1011—American Government and Politics (4)
- Pol 1050—International Relations
- (or) Pol 1100—Introduction to Political Science
- (or) Pol 1500—Contemporary Political Systems (4)

**UPPER DIVISION PROGRAM**

The political science curriculum is divided into three categories; the 28 credits for the concentration in political science should be distributed among these categories as follows:

Category I: American Politics—12 credits from the following

- Pol 3020—State Government (4)
- Pol 3030—Urban Government (4)
- Pol 3060—National Policy Issues (4)
- Pol 3080—Government and Conservation (4)
- Pol 3160—Legislative Process (4)
- Pol 3310—Public Opinion and Propaganda (4)
- Pol 5170—Political Interest Individuals and Groups (4)
- Pol 5320—American Chief Executive (3)
- Pol 5330—Judicial Process (4)
- Pol 5740—American Political Parties (4)

Category II: Comparative and International Politics—8 credits from the following:

- Pol 3450—Problems of World Politics (4)
- Pol 3510—Government and Politics of the Soviet Union (4)
- Pol 3512—Soviet Domestic and Foreign Policies (4)
- Pol 3516—European Government and Politics (5)
- Pol 3520—Chinese Government and Politics (4)

Category III: Political Theory—8 credits from the following:

- Pol 5650—American Political Thought (4)
- Pol 5652—Political Theory and Utopia (4)
- Pol 5657—Recent Political Thought (4)

Independent study and special topics courses may be applied in any of the three categories, depending on the subject matter. Additional credits outside the student's field of concentration—any courses listed in Upper Division Program—may be used to meet this requirement.

## Psychology Concentration

Two options are available for social studies majors who want to specialize in psychology.

### LOWER DIVISION (required for Option I and Option II)

Psy 1501—Human Development and Adjustment (3)

Psy 1003—General Psychology (5)

### OPTION I Program

#### UPPER DIVISION

Psy 3021—Experimental Design and Methodology (5)

Psy 3111—Psychology of Personality (3)

Psy 3201—Social Psychology (3)

Psy 3321—Adolescent Development (3)

Psy 3531—Mental Hygiene (3)

Psy 3811—Basic Statistical Methods (5)

Select any two of the following

Psy 3041—Motivation and Emotion (3)

Psy 3211—Group Dynamics (3)

Psy 3215—Topics in Human Sexuality (3)

Psy 3311—Child Development (3)

Psy 3611—Learning and Conditioning (3)

Psy 3960—Special Topics in Psychology (3)

Psy 3991—Directed Instruction (1-4)

### OPTION II Program

#### UPPER DIVISION

Psy 3111—Psychology of Personality (3)

Psy 3201—Social Psychology (3)

Psy 3321—Adolescent Development (3)

Select any two of the following

Psy 3041—Motivation and Emotion (3)

Psy 3211—Group Dynamics (3)

Psy 3215—Topics in Human Sexuality (3)

Psy 3311—Child Development (3)

Psy 3531—Mental Hygiene (3)

Psy 3611—Learning and Conditioning (3)

Psy 3960—Special Topics in Psychology (3)

Psy 3991—Directed Instruction (1-4)

## Sociology Concentration

### OPTION I Program (8 cr minimum)<sup>1</sup>

Any two of the following:

Soc 1100—Problems of American Society (5)

Soc 1200—Introduction to the Family (4)

Soc 1300—Introduction to Criminal Justice (4)

### OPTION II Program (26-27 cr)<sup>1</sup>

<sup>1</sup>Students should note that the required lower division courses for Option III are substantially different from those for Options I and II. Therefore, changing to Option III after beginning either Option I or II would require additional lower division course work.



### **LOWER DIVISION**

Soc 1150—Principles of Sociology (2)

Any two of the following:

Soc 1100—Problems of American Society (5)

Soc 1200—Introduction to the Family (4)

Soc 1300—Introduction to Criminal Justice (4)

### **UPPER DIVISION**

Soc 3170—General Social Psychology (4)

Soc 3180—Community and Social Organization (4)

Soc 3190—Current Social Issues (4)

Electives in 3000- or 5000-level courses (4)

### **OPTION III Program (40 cr)<sup>1</sup>**

#### **LOWER DIVISION**

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

#### **UPPER DIVISION**

Soc 3420—Development of Sociological Theory (4)

Soc 3700—Social Psychology (4)

Soc 3830—Sociology of Community (4)

(or) Soc 3850—Complex Organization (4)

Soc 3900—Social Issues and Social Change (4)

Electives in 3000- or 5000-level courses (12)

### **MINOR IN SOCIAL SCIENCE (ELEMENTARY) FOR THE B.A.S. DEGREE (CE)**

This minor is designed to provide a planned program of studies in social science for prospective elementary school teachers.

#### **LOWER DIVISION PROGRAM**

##### **Required Minor Courses (38)**

Anth 1604—Cultural Anthropology (5)

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Geog 1303—Cultural Geography (4)

Geog 1403—Physical Geography (4)

Hist 1301-1302-1303—American History (minimum of 8)

Pol 1011—American Government and Politics (4)

Soc 1100—Problems of American Society (5)

#### **UPPER DIVISION PROGRAM**

##### **Required Minor Courses (12)**

Electives in social science courses numbered 3000 or above in at least three different departments including geography and history (12)

##### **Total for Minor (50)**

<sup>1</sup>Students should note that the required lower division courses for Option III are substantially different from those for Options I and II. Therefore, changing to Option III after beginning either Option I or II would require additional lower division course work.

## **SOCIOLOGY-ANTHROPOLOGY (Soc)**

(See also Anthropology)

*Faculty*—Timothy G. Roufs, Ph.D., Associate Professor and Head; Stanley E. Aschenbrenner, Ph.D., Assistant Professor; Arthur C. Aufderheide, M.D., Professor of Medicine and Anthropology (School of Medicine); Walter L. Bauml, Ph.D., Professor; Dennis D. Brissett, Ph.D., Professor of Sociology and Behavioral Sciences (School of Medicine); Philip C. Campbell, Ph.D., Assistant Professor; William A. Fleischman, Ph.D., Associate Professor; Robert E. Franz, Jr., Ph.D., Assistant Professor and Assistant Department Head; Fred T. Friedman, J.D., Assistant Professor; Robert W. Gibson, Ph.D., Associate Professor of Sociology and Behavioral Sciences (School of Medicine); Von D. Kuldau, Ed. D., Associate Professor and Coordinator of Criminology; J. Clark Laundergan, Ph.D., Associate Professor; A. Neil Pearson, Ph.D., Professor; George R. Rapp, Jr., Ph.D., Professor of Geology and Archaeology (Department of Geology); F. Barry Schreiber, Ph.D., Assistant Professor; David M. Smith, Ph.D., Assistant Professor and Coordinator of Anthropology

There are two areas of concentration within sociology-anthropology officially designated on student transcripts: anthropology and criminology. Specializations are also available in community and social organization, social issues and change, and social psychology. Students may elect courses primarily from within either of the concentrations or specializations or may elect a generalized program of study. Students are urged to consult with a member of the Department of Sociology-Anthropology during their sophomore year to plan a program of undergraduate study and to consider the possibility of graduate study. Students interested in criminology should consult with a sociology-anthropology staff member no later than the third quarter of their first year of studies.

### **MAJOR IN SOCIOLOGY-ANTHROPOLOGY FOR THE B.A. DEGREE**

Most professional positions in sociology and anthropology require some graduate study. However, there are an increasing number of paraprofessional positions and occupations requiring a liberal arts background for which the sociology-anthropology major is recognized as acceptable preparation.

#### **General Program**

##### **LOWER DIVISION PROGRAM**

###### **Required Major Courses (16)**

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

Soc 3420—Development of Sociological Theory (4)

##### **UPPER DIVISION PROGRAM**

###### **Required Major Courses (30)**

Electives in sociology to complete required 46 credits—at least 23 of these credits must be in courses numbered 3000 or above.

**Total for Major (46)**

## Specializations

### Community and Social Organization

Soc 3830—Sociology of Community (4)

Soc 3850—Complex Organization (4)

Soc 5820—Community Research (4)

### Social Issues and Social Change

Soc 3900—Social Issues and Social Change (4)

8 credits from Soc 3942—The Sociology of Minority Groups (4), Soc 3944—Population Studies (4), or Soc 3912—Issues and Change Special Topics (1-5 cr)

### Social Psychology

Soc 3700—Social Psychology (4)

Soc 5710—Collective Behavior (4)

Soc 5720—Attitude and Behavior Change (4)

Soc 5740—The Psychology of Deviance (4)

## Anthropology Concentration

### LOWER DIVISION PROGRAM

#### Required Major Courses (17)

Anth 1604—Cultural Anthropology (5)

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

### UPPER DIVISION PROGRAM

#### Required Major Courses (36)

Anth 5626—Development of Anthropological Theory (4)

12 credits from 3000-level courses in anthropology or approved American Indian studies<sup>1</sup>

12 credits from 5000-level courses in anthropology or approved American Indian studies<sup>1</sup>

8 elective credits in anthropology

**Total for Major (53)**

## Criminology Concentration

### LOWER DIVISION PROGRAM

#### Required Major Courses (16)

Soc 1150—Principles of Sociology (2)

Soc 1300—Introduction to Criminal Justice (4)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

### UPPER DIVISION PROGRAM

#### Required Major Courses (30)

Soc 3121—Field Experience (6-12)

<sup>1</sup>Twelve credits of approved American Indian studies courses may be substituted as part of the 32 elective credits required for the concentration. Approved courses include Amln 3051, American Indians in the 20th Century; Amln 5920, Ojibway History and Culture; and those Amln 5010, Topics in American Indian Studies, that have been approved by the Department of Sociology-Anthropology.

Soc 3304—Theories of Crime and Delinquency (5)

Soc 3310—Sociology of Criminal Law (4)

Electives, at least 13 cr from:

Phil 3230—Theories of Punishment (4)

Soc 3318—Police-Community Relations (4)

Soc 5300—Criminal Justice System Analysis (5)

Soc 5720—Attitude and Behavior Change (4)

SW 3307—Correctional Continuum (5)

SW 5245—Planning of Criminal Justice Services (5)

SW 5250—Crime Victims and Social Police (3)

Topics approved by the Department of Sociology-Anthropology in any of the following courses: Soc 3732—Social Psychology Topics, Soc 3842—Social Organization Topics, Soc 3912—Issues and Change Special Topics, Soc 5181, 5182, 5183—Special Topics. A maximum of 8 credits from these topics courses may be counted toward the criminology concentration.

Additional credits may be taken from the sociology offerings to complete the total of 46 credits required for the major.

**Total for Major (46)**

## **MINOR IN SOCIOLOGY FOR THE B.A. OR B.S. DEGREE**

### **LOWER DIVISION PROGRAM**

**Required Courses (16)**

Soc 1150—Principles of Sociology (2)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

Soc 3420—Development of Sociological Theory (4)

### **UPPER DIVISION PROGRAM**

**Required Courses (14)**

Electives in sociology, at least 11 of which must be in courses numbered 3000 or above (14)

**Total for Minor (30)**

## **SPANISH (Span)**

(Foreign Languages and Literatures Department)

Language programs are designed for students seeking a traditional liberal education or intending to teach a foreign language. They also serve those who plan to pursue study in a graduate or professional school.

The following courses in language skills (reading, listening, speaking, writing) are common to all majors and minors in Spanish:

### **CORE PROGRAM**

Span 1101-1102-1103—Beginning Spanish I-II-III (15)

Span 1201-1202-1203—Intermediate Spanish (9)

Span 3121-3122-3123—Advanced Spanish (12)

**Total (36)**

Students without prior language preparation will normally complete the advanced skills sequence in the upper division.



A proficiency in Spanish equivalent to that expected at the end of Span 3123 may be demonstrated by examination or by documentation from another institution. This may eliminate the need for a student to take all or part of the lower division program and Advanced Spanish in the upper division program.

## **MAJOR IN SPANISH FOR THE B.A. DEGREE**

This degree program is designed for students seeking a traditional liberal education. It also serves those who plan to continue their education in graduate school or in a professional program such as library science or law.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (36)**

Core program (36)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (28)**

28 credit hours of upper division courses in Spanish; with prior approval of the student's adviser, a maximum of 5 credits directly related to the student's program may be taken from other departments

**Total for Major (64)**

A student majoring in Spanish must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated.

## **MAJOR IN TEACHING SPANISH FOR THE B.A.A. DEGREE (CE)**

This major is designed to prepare teachers of Spanish for the secondary schools.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (38)**

Core program (36)

EdSe 1201—Orientation to Teaching, Phase I (2)

#### **Required Supporting Courses (5)**

HLth 1101—Personal Health (2)

Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (46-60)**

EdSe 3101—Learning Theory Applications, Phase II (7)

EdSe 3202—Human Relations, Phase III (4)

EdSe 3301—Student Teaching, Phase IV (3-17)

EdSe 3401—The Teaching Profession, Phase V (4)

Lang 3801—Teaching Nonnative Language (4)

Span 3152—Phonology, Morphology, and Syntax (4)

Plus 20 credit hours of upper division courses in Spanish; with prior approval of the student's adviser, a maximum of 5 credits directly related to a student's program may be taken from other departments

#### **Required Supporting Courses (2)**

Educ 3201—Effects of Narcotics and Alcohol (1)

Educ 3203—Drug Use Information and Education (1)

**Total for Major (91-105)**

A student majoring in Spanish must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The B.A.A. candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. majors in Spanish must complete student teaching in Spanish for licensure.

## **MINOR IN SPANISH FOR THE B.A. DEGREE OR IN TEACHING SPANISH FOR THE B.A.A. DEGREE (CE)**

The minor is designed for those seeking to strengthen language skills in a liberal education program as well as for those planning to teach Spanish in the secondary schools.

### **LOWER DIVISION PROGRAM**

#### **Required Minor Courses (36)**

Core program (36)

### **UPPER DIVISION PROGRAM**

#### **Required Minor Courses (8)**

8 credit hours of upper division courses in Spanish

#### **Total for Minor (44)**

A student taking a minor in Spanish who intends to teach is urged to select Span 3152, Phonology, Morphology, and Syntax, for 4 of the upper division credits in Spanish. Prospective teachers must pass an oral proficiency examination, which should be taken during the junior year. The examination may be repeated. The candidate must pass the oral proficiency examination and have completed Lang 3801 before being admitted to EdSe 3301. All B.A.A. minors in Spanish must complete student teaching in Spanish for licensure.

## **SPEECH-COMMUNICATION (Spch)**

*Faculty*—Jerry K. Frye, Ph.D., Associate Professor and Head; Jackson R. Huntley, Ph.D., Associate Professor; Daniel H. Johnson, M.A., Instructor; Virginia T. Katz, M.A., Assistant Professor; John H. Ness, Ph.D., Associate Professor

The Department of Speech-Communication provides curricular and cocurricular offerings in the area of rhetoric/public address, communication, communication media, and speech/communication education. It is the aim of the department to provide the student with knowledge, skills, and experiences in effective and responsible communication.

The department offers a B.A. major and minor, a B.A.A. major and minor, and, in cooperation with the Department of Theatre, a B.A. and a B.A.A. major in speech-communication/theatre. The B.A.A. major and minor programs fulfill state licensure requirements for secondary school teaching in Minnesota.

As a supplement to traditional teaching methods, the department utilizes the facilities of WDTH-FM, educational media, and a student-operated communication laboratory with audio and video equipment. In addition, students are encouraged to participate in the numerous supervised campus and community internship programs in public relations, radio, tv, advertising, and marketing that are offered through local civic, business, and educational channels. The department anticipates that the prospective move of the local public television facility to the campus will provide a valuable learning resource for many students interested in this medium.

## **MAJOR IN SPEECH-COMMUNICATION FOR THE B.A. DEGREE**

This program is designed to provide the student with a liberal arts education and a core of knowledge, skills, and experiences for vocational opportunities in business, industry, and media.

The major requires 45 credits, including 27 credits in upper division courses, and departmental approval of a course of study. A student will plan a course of study with a departmental adviser and then must seek departmental approval of the program before completing one-half of the course credits required for the degree. The student should seek adviser guidance in selecting suitable courses before entering upper division courses. In the event of changes in the departmentally approved program, the student must obtain approval from the departmental adviser.

## **MINOR IN SPEECH-COMMUNICATION FOR THE B.A. DEGREE**

This program is designed to provide the student with a supporting area of liberal arts education and a core of knowledge, skills, and experiences to complement a major program in another discipline.

The minor requires completion of 33 credits, including 15 credits in upper division courses, and departmental approval of a course of study. See the information above under the major for approval procedures.

## **MAJOR IN TEACHING SPEECH-COMMUNICATION FOR THE B.A.A. DEGREE (CE)**

This major is designed to prepare teachers of speech for secondary schools.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (20)**

EdSe 1201—Orientation to Teaching, Phase I (2)  
Spch 1101—Rhetoric of Our Times (3)  
Spch 1111—Beginning Public Speaking (3)  
Spch 1121—Advanced Public Speaking (3)  
Spch 1202—Interpersonal Communication (3)  
Spch 1302—Mass Communication and Society (3)  
Spch 1419—History of Broadcasting (3)

#### **Required Supporting Courses (5)**

Hlth 1101—Personal Health (2)  
Additional credits in physical education courses (3)

### **UPPER DIVISION PROGRAM**

#### **Required Major Courses (65)**

EdSe 3101—Phase II: Learning Theory Applications (7)  
EdSe 3202—Phase III: Human Relations (4)  
EdSe 3301—Phase IV: Student Teaching (14)  
EdSe 3401—Phase V: The Teaching Profession (4)  
Engl 5711—Oral Interpretation of Literature (4)  
Spch 3101—Persuasion (3)  
Spch 3111—Argumentation (3)  
Spch 3112—Debate (3)  
Spch 3121—Discussion and Group Methods (3)  
Spch 3202—Foundations of Communication Theory (3)  
Spch 3700—Directing the Forensics Program (3)

Spch 3800—Problems in Speech Education (4)  
Spch 3900—Intern Teaching in Speech (3)  
Engl 5711—Oral Interpretation of Literature (4)  
A minimum of 3 credits elected in film (3)

**Required Supporting Courses (5)**

CD 5100—Oral Communication Disorders (3)  
Educ 3201—Effects of Narcotics and Alcohol (1)  
Educ 3203—Drug Use Information and Education (1)

**Total for Major (95)**

Students are advised to take Spch 3900 concurrently with EdSe 3201. In this way they may apply what they are learning in Phase III to an actual classroom situation prior to their student teaching experience in EdSe 3301.

## **MAJOR IN TEACHING SPEECH-COMMUNICATION/THEATRE FOR THE B.A.A. DEGREE (CE)**

See program listing under Department of Theatre (SFA).

## **MINOR IN TEACHING SPEECH-COMMUNICATION FOR THE B.A.A. DEGREE (CE)**

This minor is designed to offer minimal preparation for teachers of speech for secondary schools. It is offered only in conjunction with a major in another teaching area.

### **LOWER DIVISION PROGRAM**

**Required Minor Courses (15)**

Spch 1101—Rhetoric of Our Times (3)  
Spch 1111—Beginning Public Speaking (3)  
Spch 1121—Advanced Public Speaking (3)  
Spch 1202—Interpersonal Communication (3)  
Spch 1302—Mass Communication and Society (3)

### **UPPER DIVISION PROGRAM**

**Required Minor Courses (23)**

Engl 5711—Oral Interpretation of Literature (4)  
Spch 3101—Persuasion (3)  
Spch 3111—Argumentation (3)  
Spch 3112—Debate (3)  
Spch 3121—Discussion and Group Methods (3)  
Spch 3800—Problems in Speech Education (4)  
A minimum of 3 credits in communication media (film, radio, TV) (3)

**Total for Minor (38)**

Students are advised to take Spch 3900, Intern Teaching in Speech, in addition to the above required courses. The reasons for taking this course are explained in the major description above.



## URBAN STUDIES

*Coordinator*—Olsen (Pol)

*Advisers*—Boyer (BA); Das (Psy); Fleischman (Soc); Levine (Geog); Olsen (Pol); Raab (Econ); Trolander (Hist); Witzig (Geog)

The urban studies program is designed in part as a preparation for junior-level positions in planning, administrative, and problem-solving agencies at city, county, regional, state, and federal levels. Upon completion of the program students may pursue graduate work in urban affairs, planning, public administration, and related disciplines. The program will aid those who seek a better understanding of the complexities of life in urban America.

## MAJOR IN URBAN STUDIES FOR THE B.A. DEGREE

The urban studies program enhances an understanding of the forces that shape life in cities and their adjacent regions throughout the world. It draws upon the resources and skills of numerous departments on the campus.

### LOWER DIVISION PROGRAM

#### **Required Major Courses (35)**

Econ 1004—Principles of Economics: Micro (4)

Econ 1005—Principles of Economics: Macro (4)

Geog 1303—Cultural Geography (4)

Geog 1403—Physical Geography (4)

Pol 1011—American Government and Politics (4)

Psy 1003—General Psychology (5)

Soc 1400—Social Inquiry I (5)

Soc 1410—Social Inquiry II (5)

### UPPER DIVISION PROGRAM

#### **Required Major Courses (23)**

Econ 3346—Principles of Urban Economics (4)

Geog 3331—Urban Geography (3)

Pol 3030—Urban Government and Politics (4)

Pol 3220—Introduction to Public Administration (5)

Pol 3399—Seminar: Urban Affairs (3)

Soc 3830—Sociology of Community (4)

**Departmental Concentration**—14 credits (minimum), to be selected in consultation with the adviser, from one of the following groupings:

#### **ACCOUNTING, BUSINESS ADMINISTRATION**

Acct 1511—Financial Accounting I (3)

Acct 1512—Financial Accounting II (3)

Acct 3514—Fund Accounting I (3)

Acct 5516—Program Budgeting (3)

BA 3030—Business Environment (4)

BA 3304—Fundamentals of Management (3)

BA 3361—Business Policy (5)

BA 3804—Personnel Administration (3)

BA 3821—Human Relations in Administration (4)

#### **ECONOMICS**

Econ 3803—Public Finance (5)

Econ 5361—Regional Economics and Location Theory (5)  
Econ 5362—Urban Economics (4)

**POLITICAL SCIENCE**

Pol 3020—State Government (4)  
Pol 3160—Legislative Process (4)  
Pol 3310—Public Opinion and Propaganda (4)  
Pol 5170—Political Interest Individuals and Groups (4)  
Pol 5330—The Judicial Process (4)  
Pol 5340—Metropolitan Government and Politics (4)  
Pol 5350—State and Local Finance (4)

**SOCIOLOGY**

Soc 3850—Complex Organization (4)  
Soc 5120—Independent Study in Sociology (max of 5)  
Soc 5170—Urban Sociology (4)  
Soc 5820—Community Research (4)

**GEOGRAPHY**

Geog 1305—Environmental Conservation (4)  
Geog 3324—Geography of Industrial Location (4)  
Geog 3341—Geography of Transportation and Trade (4)  
Geog 3522—Introductory Cartography (4)  
Geog 3611—Field Techniques (4)  
Geog 5701—Settlement Geography (4)

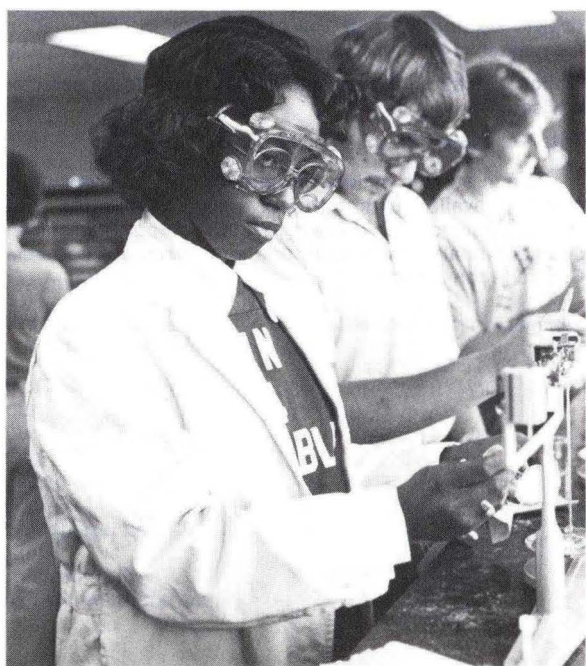
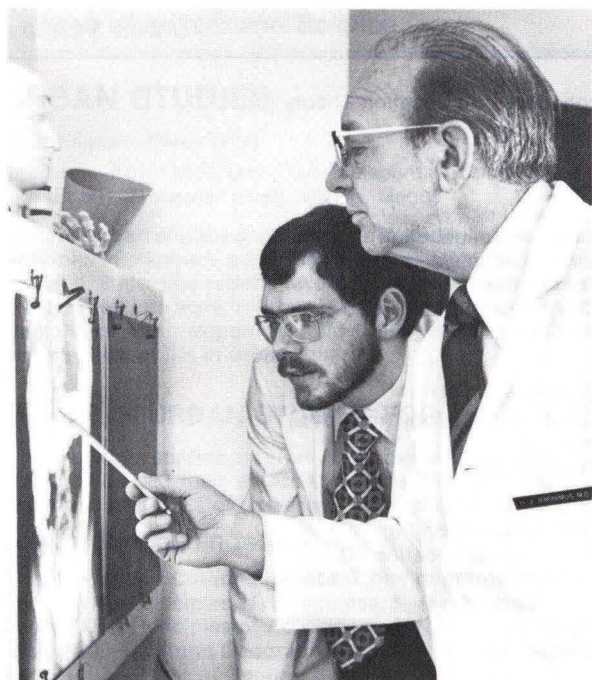
**INTERDEPARTMENTAL**

A selection of course offerings designed to attain a very specific educational objective, to be approved by the coordinator in consultation with the Urban Studies Committee (14)

**Option:** 6-8 additional credits in two fields, to be selected in consultation with the adviser

**Total for Major (78-80)**

Urban studies majors are encouraged to investigate fieldwork and internship offerings available through University College and through the Departments of Political Science and Sociology-Anthropology. It is also suggested that majors pursue additional work in appropriate mathematics courses. Hist 3361, *The American City*, is recommended.



## VII. SCHOOL OF MEDICINE (SM)

*Dean:* John W. LaBree, 214 School of Medicine, 726-7571

The School of Medicine offers a 2-year curriculum of basic medical and clinical sciences with principal emphasis on the training of family physicians. Under arrangements with the University of Minnesota Medical School in Minneapolis, students who successfully complete the program at UMD will be accepted on a noncompetitive basis for completion of their M.D. requirements.

The specific goals of the School of Medicine at Duluth are:

1. to increase the total number of physicians serving Minnesotans;
2. to increase the number of family physicians; and
3. to increase the probability that graduates of Minnesota medical schools will establish practice in rural rather than urban areas of the region.

In light of the latter two goals, many family practitioners, as well as other primary care physicians, are utilized as instructors and preceptors throughout the 2 years of study. These role models illustrate, both through their instruction and example, the delivery of general and family medical care in urban, small community and rural settings. The preceptorship program in family medicine is specifically designed to meet these goals and to augment the supply of family physicians in the northern regions of Minnesota.

Course work taught by School of Medicine faculty at the undergraduate and graduate levels is listed by department in the course description section. Special attention is called to Med 3998, Topics in Human Biology and Behavior, which allows advanced undergraduates to work with medical school faculty members on independent study projects and on individualized study of various topics.

Additional information on the school's policies, including admission procedures, is available in the separate *School of Medicine Bulletin*.

## BEHAVIORAL SCIENCES (BhSc)

*Faculty*—Dennis D. Brissett, Ph.D., Professor and Head; James G. Boulger, Ph.D., Associate Professor; Gary L. Davis, Ph.D., Assistant Professor; Fred T. Friedman, J.D., Clinical Assistant Professor; Robert W. Gibson, Ph.D., Associate Professor; Arne K. Jessen, M.Th., Clinical Assistant Professor; William J. Krossner, Ph.D., Associate Professor; Richard E. Nelson, M.Div., Clinical Assistant Professor; Clyde R. Olson, M.D., Clinical Assistant Professor

The offerings in this discipline provide a social scientific analysis of those facets of human behavior most relevant to the practice of medicine. The courses encompass both the social science of medicine (i.e., the analysis of the medical profession, the hospital as a social system, examination of the doctor-patient relationship) and social science in medicine (i.e., the impact of social attitudes on behavior during illness, interviewing techniques, the developmental process, abnormal behavior, and psychiatry).

### COURSES OPEN ONLY TO MEDICAL STUDENTS

**5211f. MEDICAL SOCIOLOGY.** (2 cr)

**5217su. BEHAVIORAL ASPECTS OF HUMAN SEXUALITY.** (1 cr)

**5220w-5221s-5222s. MEDICAL SOCIAL PSYCHOLOGY** (1 cr each)

**5230f. MEDICAL PSYCHOLOGY: INTERVIEWING.** (2 cr)

**5231f. MEDICAL PSYCHOLOGY.** (2 cr)



**5252w. ABNORMAL HUMAN BEHAVIOR.** (2 cr)

**5253f. RURAL LIFE-STYLES.** (2 cr)

**5256s. INTRODUCTION TO PSYCHIATRY.** (3 cr)

**5262w. TOPICS IN MEDICAL BEHAVIORAL SCIENCES.** (2 cr)

## **BIOCHEMISTRY (MdBc)**

*Faculty*—Paul M. Anderson, Ph.D., Professor and Head; Lester R. Drewes, Ph.D., Assistant Professor; Stephen C. Hedman, Ph.D., Associate Professor; Thomas E. Huntley, Ph.D., Associate Professor; Wilmar L. Salo, Ph.D., Associate Professor

The course offered by this department provides a comprehensive introduction to biochemistry. Those areas of biochemistry that are most closely related to the medical sciences and clinical medicine are emphasized.

The Department of Biochemistry is also responsible for the courses in biochemistry offered by the Department of Chemistry (Chem 3310, 5332-5333, 5335, and 8340).

### **COURSES OPEN ONLY TO MEDICAL STUDENTS**

**5311f. BIOCHEMISTRY.** (12 cr)

## **BIOMEDICAL ANATOMY (Anat)**

*Faculty*—T. John Leppi, Ph.D., Professor and Head; Stephen W. Downing, Ph.D., Assistant Professor; Donna J. Forbes, Ph.D., Assistant Professor; Richard L. Leino, M.S., Instructor; Arlen R. Severson, Ph.D., Associate Professor; Charles T. Theisen, Ph.D., Assistant Professor

The course work in biomedical anatomy correlates structure and function in humans spanning from macrostructure to ultrastructure. Heavy emphasis is placed on basic-clinical science correlations throughout the anatomical sciences.

### **COURSES OPEN ONLY TO MEDICAL STUDENTS**

**5502w-5503s. HUMAN GROSS ANATOMY.** (7/3 cr)

**5512w. HUMAN DEVELOPMENTAL ANATOMY.** (3 cr)

**5521f. HUMAN MICROSCOPIC ANATOMY.** (8 cr)

**5533s. HUMAN NEUROANATOMY.** (5 cr)

## **CLINICAL SCIENCES (CISc)**

*Faculty*—James E. Hoffman, M.D., Associate Professor and Head; Gerald E. Cotton, M.D., Assistant Professor; John W. LaBree, M.D., Professor

*Clinical Coordinators*—Robert E. Carter, M.D.; Bart S. Cuderman, M.D.; Mark R. Eckman, M.D.; William E. Jacott, M.D.; Edward Jimenez, M.D.; Clyde R. Olson, M.D.; Bruce F. P. Williams, M.D.

The clinical science offerings include basic course work in the art and science of medical diagnosis and in the treatment and management of illness. In addition to didactic sessions, students gain experience in dealing with patients in both ambulatory and hospital settings. Course work is oriented toward primary care, with particular emphasis on family practice.

**COURSES OPEN ONLY TO MEDICAL STUDENTS**

5101f-5102w-5103s-5104su. **PHYSICAL DIAGNOSIS.** (1/1/2/1 cr)

5121f-5122w-5123s. **PRECEPTORSHIP I.** (1 cr each)

5201f-5202w-5203s-5204su. **INTRODUCTION TO CLINICAL MEDICINE.** (5/4/4/9 cr)

5214su. **OBSTETRICS.** (1 cr)

5301f. **BIOSTATISTICS.** (1 cr)

5303s. **EPIDEMIOLOGY.** (2 cr)

5304su. **COMMUNITY MEDICINE.** (2 cr)

5441f-5442w-5443s-5444su. **CLINICAL ROUNDS AND CLERKSHIP.** (2/2/2/1 cr)

5451f-5452w-5453s. **CLINICAL NEUROLOGY.** (1 cr each)

5461f-5462w-5463s. **PRECEPTORSHIP II.** (1 cr each)

5473s. **COMMUNICABLE DISEASE AND ENVIRONMENTAL HEALTH.** (2 cr)

## **MEDICAL MICROBIOLOGY AND IMMUNOLOGY (MicB)**

*Faculty*—Thomas R. Hamilton, M.D., Professor and Head; Harry J. Bowers, M.S., Clinical Instructor; Robert E. Carter, M.D., Professor; Mark R. Eckman, M.D., Clinical Assistant Professor; Theodore E. Haglund, M.D., Instructor; Louise B. Hawley, Ph.D., Assistant Professor; Omelan A. Lukasewycz, Ph.D., Assistant Professor; Richard J. Ziegler, Ph.D., Associate Professor

In addition to bacteriology, immunology, virology, mycology, parasitology, and entomology, the etiology and pathogenesis of infectious and immunologic diseases are emphasized. Presentations are directed toward understanding basic and fundamental concepts in order to enhance the students' grasp of pathobiology and ability to logically manage patient care utilizing pharmacological and other clinical modalities.

**COURSES OPEN ONLY TO MEDICAL STUDENTS**

5501f. **INTRODUCTORY MICROBIOLOGY.** (1 cr)

5508f. **MEDICAL MICROBIOLOGY.** (5 cr)

5512w-5513s. **CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASE.** (1/3 cr)

5542w. **PRINCIPLES OF IMMUNOLOGY.** (1 cr)

5551f. **IMMUNOLOGY.** (2 cr)

**PATHOLOGY (Path)**

*Faculty*—Arthur C. Aufderheide, M.D., Professor and Head; R. Curtis Flaa, M.D., Clinical Associate Professor; Volker Goldschmidt, M.D., Clinical Professor; Bette W. Hamilton, M.A., Instructor; George W. Knabe, Jr., M.D., Professor; John P. Knoedler, M.D., Clinical Assistant Professor; Donald M. Larson, M.D., Assistant Professor; Subhash C. Vidyarthi, M.D., Clinical Associate Professor

Human pathology is the study of anatomic changes in body tissues characterizing disease states. The first course in pathology deals with general principles, while the others are devoted to diseases of the various organ systems.

Particular emphasis is placed on correlation between anatomic changes and clinical signs and symptoms under disease conditions. Special effort is made to integrate subject matter with the content taught simultaneously in the other disciplines within the medical school curriculum.

## **COURSES OPEN ONLY TO MEDICAL STUDENTS**

**5705f. PRINCIPLES OF HUMAN PATHOLOGY.** (4 cr)

**5706w-5707s. SPECIAL AND CLINICAL HUMAN PATHOLOGY.** (4 cr each)

## **PHARMACOLOGY (Phcl)**

*Faculty*—Lloyd Beck, Ph.D., Professor and Head; Richard M. Eisenberg, Ph.D., Associate Professor, John L. Gueriguian, M.D., Associate Professor; Edward T. Knych, Jr., Ph.D., Assistant Professor

Pharmacology is the science that deals with the actions of chemical agents on bodily processes. The general course in this discipline emphasizes the basic classification of drugs and their general and specific therapeutic applications. Since no drug produces a *de novo* effect, a knowledge of the sciences dealing with basic biochemical and physiological processes is prerequisite to the study of pharmacology.

## **COURSES OPEN ONLY TO MEDICAL STUDENTS**

**5101f-5102w-5103s. PHARMACOLOGY.** (7/5/5 cr)

## **PHYSIOLOGY (Phsl)**

*Faculty*—Robert S. Pozos, Ph.D., Associate Professor and Head; Edwin W. Haller, Ph.D., Associate Professor; Lois J. Heller, Ph.D., Associate Professor; Charlotte M. MacLeod, M.A., Instructor; David E. Mohrman, Ph.D., Assistant Professor; Edward K. Stauffer, Ph.D., Assistant Professor; Lorentz E. Wittmers, M.D., Ph.D., Assistant Professor

Physiology is the science dealing with the principles governing the functions of human biological systems such as the nervous, cardiovascular, and endocrine systems. A significant number of class hours is devoted to demonstrating the relevance of physiology to various clinical disciplines.

## **COURSES OPEN ONLY TO MEDICAL STUDENTS**

**5801w-5802s. HUMAN PHYSIOLOGY.** (7 cr each)

## **VIII. SCHOOL OF SOCIAL DEVELOPMENT (SSD)**

*Acting Dean:* C. David Hollister  
295 Marshall W. Alworth Hall, 726-7245

*Faculty*—Burton R. Galaway, M.S.W., Instructor; Philip J. Heslin, Ph.D., Associate Professor; C. David Hollister, Ph.D., Associate Professor; Eugene L. Hooyman, Ph.D., Assistant Professor; Nancy J. Hooyman, Ph.D., Associate Professor; John L. Musick, Ph.D., Assistant Professor; Rama S. Pandey, Ph.D., Professor; Frances E. Skinner, M.S.W., Associate Professor

The School of Social Development was established in the spring of 1971 to prepare students for careers in regional and national social development. Social development refers to the process of planned institutional change to bring about a better correspondence between human needs and social policies and programs. Attention is given both to the need for comprehensive and coordinated planning on a regional and national basis, and to help indigenous groups influence political and institutional structures to more completely address their particular needs.

Social development requires an integrated approach to developmental problems including a consideration of human needs, social policies and their political and economic context, social planning, administration, evaluation, and research skills. The curriculum of the school, both at the undergraduate and graduate levels, presents a systemic approach to the understanding and solution of social problems and social service delivery. The school seeks to educate professional social workers whose approach to the critical social needs and issues of the day will be developmental rather than ameliorative in nature.

See the section on the Graduate School for information about the master of social work program.

### **ADMISSION CRITERIA**

To be admitted to the bachelor of social development (B.S.D.) degree program a student must: (1) have a cumulative grade point average of 2.00 (special consideration is given to disadvantaged students who do not meet this requirement); (2) complete specified pre-social development requirements and formal application for admission to the School of Social Development (students are urged to apply for admission early in the sophomore year); and (3) complete the sophomore year before formal admission is granted.

Application forms are available in 295 Marshall W. Alworth Hall.

### **HONORS PROGRAM**

An undergraduate honors program is being developed and will be announced at a later date.

### **BACHELOR OF SOCIAL DEVELOPMENT DEGREE PROGRAM**

The bachelor of social development degree program provides a specialization in social development within the field of social work. Curriculum emphasis is on



preparation of beginning professional social workers for work with grass roots community groups, in social planning and policy formulation, and in program implementation and evaluation. The curriculum consists of theoretical and experiential content designed to support this emphasis.

## **REQUIREMENTS FOR THE BACHELOR OF SOCIAL DEVELOPMENT DEGREE**

1. Completion in the lower division of liberal education requirements listed in this bulletin.
2. Completion of requirements specified for the Lower Division Program below, with a minimum grade point average of 2.00 (C).
3. Completion of requirements specified for the Upper Division Program below, with a minimum GPA of 2.00 (C). This average applies not only to courses taken at UMD and calculated separately but also to all courses taken, including those completed elsewhere.
4. Students in the bachelor of social development program are required to file upper division papers following completion of 84 credits and prior to completion of 105 credits.
5. Compliance with general regulations governing the granting of degrees.

### **LOWER DIVISION PROGRAM**

#### **Required Major Courses (64-68)**

Anth 1604—Cultural Anthropology (5)  
(or) Geog 1303—Cultural Geography (4)  
Econ 1002—Introduction to Economics  
(or) Econ 1004—Principles of Economics: Micro  
(or) Econ 1005—Principles of Economics: Macro (4)  
Math 3565—Statistics for the Social Sciences (4)  
(or) Math 3561—Elementary Statistics (4)  
(or) Econ 1203—Statistical Methods (4)  
(or) Psy 3811—Basic Statistical Methods (5)  
Pol 1011—American Government and Politics (4)  
Psy 1003—General Psychology (5)  
Soc 1100—Problems of American Society (5)  
SW 1109—Human Services Laboratory (2-6)  
SW 1130—Development of Human Services (4)  
Other electives to meet lower division liberal education requirements

### **UPPER DIVISION PROGRAM**

#### **Junior Year (24)**

SW 3310—Social Development (4)  
SW 3320—Dynamics of Change (4)  
SW 3330—Research I (4)  
SW 3331—Research II (4)  
SW 3350—Fieldwork I (8)

#### **Senior Year (21)**

SW 3400—Social Policy and Planning (4)  
SW 3450—Fieldwork II (8)  
SW 5300—Social Structure, Community Organization (5)  
SW 5400—Human Services Administration (4)

Upper division electives in fields other than social development (30)

Electives from any department, upper or lower division (37-41)

**Total Minimum Credits for Bachelor of Social Development Degree (180)**

## IX. GRADUATE SCHOOL (GS)

### GENERAL INFORMATION

The Graduate School offers at the University of Minnesota, Duluth, a full program for the master of arts degree with majors in art, education, education (emphasis art), education (emphasis music), educational administration, educational psychology (school counseling), English, history, and communicative disorders. Students may complete all course work at Duluth.

The Graduate School offers a full program for the master of science degree with majors in biology, botany, chemistry, geology, physics, and zoology. In addition, the master of social work (emphasis social development) and master of business administration degrees is offered. The 2-year program leading to the specialist certificate in education may be obtained in elementary, secondary, and general school administration. These programs are under the jurisdiction of the dean of the Graduate School and have admission, candidacy, and degree requirements comparable to similar programs on the Twin Cities campus.

### ADMISSION TO GRADUATE SCHOOL

Any student with a Bachelor's degree or its foreign equivalent from a recognized college or university may apply to the dean of the Graduate School for admission. Applicants with the necessary background for their chosen major field, an excellent scholastic record from an approved college or university, and appropriate professional qualifications may be admitted for graduate work on recommendation of the graduate faculty in the proposed major field and approval of the dean of the Graduate School. University of Minnesota undergraduates who lack no more than 9 quarter credits or two courses from completion of the bachelor's degree (including both distribution and total credit requirements), if they meet admission requirements, may register in the Graduate School to begin a graduate program while simultaneously completing work for the bachelor's degree.

**Credentials Examination Fee**—A credentials examination fee is required of each applicant. Detailed information about the fee is included in the instructions that accompany the Graduate School application for admission form.

**Miller Analogies Test**—A graduate-level form of the Miller Analogies Test is required of applicants for the following programs: educational psychology (for M.A.), emphasis in special education under any major and for any degree, and the specialist certificate. Those on or near a college or university campus may contact the student counseling center, testing service, or similar office on that campus to arrange to take the test. Those not near a college or university campus may write to the Psychological Corporation, 304 East 45th Street, New York, New York 10017, for a list of testing centers.

**Graduate Management Admission Test (GMAT)**—All applicants in business administration must request that an official report of the results of the Graduate Management Admission Test be sent to the Graduate School from the Educational Testing Service as part of the application for admission to graduate work in that field. Since this test is given at limited times and places during the year, applicants are advised to register early for the examination. For further information concerning registration for the examination, students should write to the Educational Testing Service, Box 966, Princeton, New Jersey 08540.

**Graduate Record Examination (GRE)**—Students who submit undergraduate narrative transcripts or transcripts containing “pass-no credit (P-N),” “credit,” or other ungraded notations for a substantial number of courses taken during the junior and senior years must submit the results of the GRE (both the aptitude test and, if available, an advanced test, appropriate to the proposed major in the Graduate School).

The GRE is requested by the biology fields. It is recommended that applicants in biology complete this test either in the senior year of undergraduate work or before filing an application for admission.

For information about the GRE, applicants should write to the Educational Testing Service, Box 955, Princeton, New Jersey 08540. Official scores must be sent directly to the Graduate School office from the testing service.

**Test of English as a Foreign Language (TOEFL)**—This test is required of all foreign applicants whose native language is not English, except in those cases in which an applicant will have completed an academic year in residence as a full-time student at another recognized institution of higher learning in the United States prior to entering the University of Minnesota. The Graduate School reserves the right to require additional testing upon arrival.

Applications will be considered prior to the time that TOEFL results are available and, if a student is admissible, the Certificate of Eligibility necessary to obtain a visa will be issued as soon as the Graduate School receives evidence of satisfactory performance on the test.

*Note*—The Graduate School reserves the right to request additional information in any case where it is believed necessary.

## APPLICATION PROCEDURE

Requests for application materials must be sent to the Graduate School, 431 Administration Building, University of Minnesota, Duluth, Minnesota 55812. Requests should specify the applicant’s proposed major field, degree objective, and desired date of entry.

Applicants are encouraged to apply for admission well in advance of the term in which they wish to enter the Graduate School (but no more than 1 year in advance of the proposed entry date). The Graduate School application, complete with all required materials, must be submitted by the following deadlines:

- fall quarter—August 15
- winter quarter—November 25
- spring quarter—February 25
- summer session, first term—May 15
- summer session, second term—June 15

Deadlines that occur on a holiday or weekend will be extended through the next regular workday. Many major fields have established earlier deadlines than those listed above and also require additional application and supporting materials. It is the applicant’s responsibility to obtain information on those deadlines and requirements from the specific program descriptions in this bulletin and from the director of graduate study in the proposed major field.

**Transient Graduate Students**—Students currently engaged in an advanced degree program and in good standing at another recognized graduate school who wish to enroll for a summer session or a single quarter in the Graduate School of the University of Minnesota and who intend thereafter to return to the graduate school in which they are carrying forward their program of studies for a graduate degree may be admitted as a *transient graduate student*. These students must have previously



registered for course work in their graduate school within the previous year. Transient graduate status may not be granted more than 1 quarter or 2 consecutive summer terms. Students wishing transient graduate status should request the Transient Graduate form from the Graduate School Office, 431 Administration Building, and have the form certified and returned by their dean prior to registration for classes.

**Readmission, Change of Major, or Change of Degree Objective**—Persons who have not registered in the Graduate School for 2 consecutive years or more must request readmission before registering for classes. Students admitted to the Graduate School who fail to register for classes within 1 year of their admission date are also required to reapply for admission. Students who have completed a degree or certification program and who wish to take additional work in the Graduate School must apply for readmission. Students currently enrolled who wish to change their major field or degree objective from that originally approved by the Graduate School should request the Change of Status for (GS #72). Readmission or Change of Status forms may be obtained from the Office of the Assistant Dean of the Graduate School. A minimum of 4 weeks prior to the desired beginning date of classes is required to process these requests.

## REGISTRATION

Students admitted to the Graduate School may obtain directions for registration at the Office of the Assistant Dean of the Graduate School at UMD. Graduate fees are listed in the General Information section of this bulletin and in the *General Information Bulletin* of the University of Minnesota. Graduate student registration forms must be signed by a graduate adviser.

**Registration Requirements**—The Graduate School requires that graduate students holding appointments as teaching or research assistants, teaching associates, and administrative or medical fellows register each term that an appointment is held. This does not apply to summer terms except for medical fellows.

Students receiving other types of financial aid from the University or other agencies, foreign students with certain types of visas, and students wishing to use various University services and facilities may have to meet specific registration requirements of other agencies or University units. These students are responsible for securing information about such requirements from the appropriate offices.

Graduate students need not register for the *sole* purpose of taking final written or oral examinations for the master's degree or specialist certificate or for taking the preliminary written or oral examinations for the doctorate.

**Varieties of Registration**—The two kinds of registration used by graduate students at UMD are:

1. **Registration for Course Work**—The maximum number of credits for which a graduate student may register in a single quarter during the academic year of 16; in a single term during the summer session, 10. Exceptions are granted by the Graduate School office only under unusually circumstances.
2. **"Thesis-Only" Registration**—This type of registration is designed to give students a means of registering when they are not taking course work but are required to register for institutional or personal reasons. Eligibility is not confined to those students actually working on a thesis. Students typically using thesis-only registration include those working on Plan A master's theses, teaching or research assistants who are not taking courses but must maintain graduate student registration, and students in the process of chang-



ing majors who wish to retain active registration. Eligible students must obtain their adviser's signature.

**Foreign Students**—Foreign students are normally required to maintain registration in the Graduate School to satisfy the rules of the Immigration Service. Students should, therefore, plan their programs carefully to meet this requirement. The Graduate School is required to notify the Immigration Service office when a foreign student does not maintain registration.

**Official Transcripts**—Official transcripts of records of Graduate School students are available in the Registrar's Office at UMD, except for students who have not registered in the Graduate School since fall quarter 1972. The official records of those registering prior to 1972 are in the Registration and Student Records Office, 150 Williamson Hall, 231 Pillsbury Drive S.E., University of Minnesota, Minneapolis, Minnesota 55455.

**Back-Registration and Cancellation of Courses**—Graduate students must complete registration, including addition and cancellation of courses, each quarter by the last day of class and before examinations begin, subject to the fee required for late registration or late payment of fees.

## TRANSFER OF CREDITS

**From an Undergraduate College of the University of Minnesota**—Credits for advanced courses earned while students were registered as an undergraduate at the University may be transferred to the Graduate School record once they have been admitted and have registered as a graduate student, but under the following conditions:

If no more than 9 quarter credits or two courses of undergraduate work are lacking toward the completion of the degree (including both distribution and total credit requirements), a maximum of 12 credits of graduate work in approved courses numbered 5000 or above may be carried for graduate course credit; such courses may not be applied toward an undergraduate degree. The conditions stated must exist at the beginning of the quarter in which the courses for graduate credit are taken. Certification that these conditions have been met must be obtained by the student from the undergraduate college office and attached to the proposed degree program in which the credits to be transferred are to be included. An official transcript recording these credits must be attached.

**From Special or Summer Special Status**—Students admitted to and registered in the Graduate School may transfer to their graduate program the graduate-level credits earned in their first academic quarter or summer session (2 consecutive summer terms in the same calendar year) as a special or summer special student. Such work must be graduate level and must be offered by members of the faculty approved to teach graduate courses, and students must complete the work required of graduate students in the courses. The transfer is accomplished by inclusion of the courses on the proposed degree program; an official transcript of the work must be attached.

**From Independent (Correspondence) Study**—Graduate credit is *not* allowed for credits earned through independent (correspondence) study.

**From Other Graduate Institutions to Apply Toward a Master's Degree**—In the usual master's program (Plan A—28 credits, or Plan B—44 credits), transfer of a maximum of 9 quarter credits is allowed. The transfer allowance is often higher for

master's programs of greater length (e.g., master of social work), and students should refer to the appropriate program section for this information. The credits to be transferred must appear on an official transcript of a recognized graduate school, and transfer is accomplished by inclusion of the courses on the proposed degree program. Transfer credits are not considered in calculating the grade point average for purposes of graduation.

## **FINANCIAL AIDS AND OTHER ASSISTANCE**

A limited number of fellowships and scholarships is available through the Graduate School. Included are those supported by the Bush Foundation, which provide a yearly stipend of about \$3,500 plus tuition. Scholarships and fellowships are available for any level of graduate work. Students must be nominated for them by their major department or program. Letters of recommendation, transcripts, and other supporting information for these fellowships must be submitted in the department or program office as early as possible in fall quarter to meet the deadline for consideration. Forms for these purposes may be obtained in the Office of the Assistant Dean of the Graduate School, or by writing directly to the Graduate Fellowship Office, 309 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455.

Foreign students are eligible to apply for foreign student tuition fellowships. A special form is required for this purpose. Foreign students should submit their completed application to the Graduate School as early as possible. These grants are usually made during spring quarter. For information, write the Foreign Student Adviser, 180 Kirby Center, University of Minnesota, Duluth, Minnesota 55812.

Assistantships are normally granted through the individual departments, and information can be obtained by writing the graduate director of the appropriate department.

Some residence counseling positions may be available. For information, write directly to the Housing Office, 159 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

Inquiries regarding loan funds, living accommodations, employment, and placement should be addressed to the Vice Provost for Student Affairs, 247 Administration Building, University of Minnesota, Duluth, Minnesota 55812.

## **REQUIREMENTS FOR THE MASTER'S DEGREE**

The master's degree is offered under two plans: Plan A (involving a thesis) and Plan B. Plan B is the only plan available at Duluth for majors in art, business administration, education, education (emphasis art), education (emphasis music), educational administration, educational psychology (school counseling), English, communicative disorders, and social work. Physics majors follow Plan A requirements. Biology, chemistry, geology, and history majors may select either Plan A or Plan B.

For either of these two plans, it is possible and acceptable (except in certain specified areas) for the student who is adequately prepared and who can devote full time to graduate study to complete the requirements for the master's degree in 1 academic year of 3 quarters, or its equivalent in summer terms (one summer term is the equivalent in residence of one-half a school quarter of the regular academic year). It should be noted that not all major fields offer sufficient course work during the summer to meet degree requirements. A nonresident student who completes work for the master's degree in less than 3 academic quarters or 6 summer terms is



required to pay tuition for 3 quarters or the equivalent in summer terms. The completion of a master's program ordinarily requires, however, from 4 to 6 quarters in residence, or its equivalent in summer terms. Students who are planning to earn the degree under either Plan A or Plan B should, therefore, take into account this customary rate of progress as well as the minimum completion time of 1 academic year. If such matters as self-support, prerequisite work, or special study of foreign languages (or English for foreign students) are involved in completing the master's degree, students should anticipate and plan for a period of residence longer than the minimum 3 academic quarters.

**Time Requirement for the Master's Degree**—The maximum time allowed by the Graduate School for completion of the master's degree is 7 years. The 7-year period begins with the oldest work included on the official degree program, including any transfer work applied. The graduate faculty in a specific program may set more stringent time requirements.

**Grading System**—Graduate students may elect either the A-N or S-N system of grading during the first 2 weeks of classes except for those courses that are approved for mandatory A-N or S-N grading. Summer school students have the first week of classes to decide on a grading system. Students must inform the instructor of the system they elect. Instructors are obligated to explain to their students the level of achievement necessary to earn an S grade for a course. No more than one-third of a student's total course program may be taken under the S-N system. A grade point average of at least 2.80 must be maintained for all courses included in the approved degree program and may apply also to all graduate courses taken by the student even if they are not a part of his or her approved program; a higher level of performance may be required in certain fields. Graduate credit is not allowed for course work of D quality. Graduate School students are not permitted to elect P-N grading.

Course instructors may, at their discretion, set a time limit for removal of incomplete grades. In general, it is recommended that incomplete grades be removed within 1 calendar year. Students with an excessive number of incompletes may be denied further registration until some of them have been removed.

**Transfer From One Plan for the Master's Degree to the Other**—A student accomplishes such a transfer by submitting to the Graduate School a revised program signed by the adviser.

## Plan A: Master's Degree With Thesis

**Major and Related Field(s) or Minor**—In choosing a major and a related field(s) or minor field of work, the student must present the minimum undergraduate preparation prescribed in the departmental statements. The student must complete in the Graduate School a minimum of 20 quarter credits in the major and 8 in related field(s). The student may elect a minor if at least 9 credits are completed in a single field. A minor will be certified on the transcripts, but a related field(s) will not.

In cases where the student takes course work beyond the minimum requirements, both the adviser and the Graduate School may demand comparable standards of performance for all work taken, in evaluating and approving the minimum program submitted, and may reject the minimum degree program if the GPA for the total number of courses taken falls below 2.80 and may also terminate candidacy.

The student's work for the related field(s) or minor must be logically related to the major work. The dean may, in exceptional cases, allow a related field to be taken in the same department as that of the major.

Admission to the Graduate School requires the specification of a major field. Any proposal for a subsequent change in major necessitates a formal request to the Graduate School.

**Official Program for the Degree**—After completing 9-15 credits, and ordinarily not later than the third quarter of registration (the second year for longer programs), students must file with the Graduate School an official proposed program for the degree. The program form is available in the Graduate School office. On it students list all course work, completed and proposed, that will be offered in fulfillment of degree requirements. If a foreign language is required, the one to be offered is specified. If the degree is being taken under Plan A, students also include their thesis proposal. *On the basis of this program the members of students' final examining committees, and the thesis readers for Plan A, are appointed.*

**Changes in the Program**—Once approved, the program must be fulfilled in every detail to meet graduation requirements. Alterations in the program that are found necessary or desirable must be requested in advance by means of the General Petition form.

**Language Requirement for the Master's Degree**—See the appropriate major field section to determine the language requirement, if any, for that field. The Graduate School monitors the fulfillment of the language when a department requires it, and information about how the student must demonstrate proficiency and the conditions under which proficiency will be recorded on the official transcript is available from the Graduate School office.

**Master's Thesis**—The student must submit the title of his or her thesis and a complete program of the work to be offered for the degree on a form secured at the Office of the Assistant Dean of the Graduate School. The thesis title must be approved by the adviser. The thesis should be on a topic falling within the field of the major. Ordinarily, approximately half of the candidate's time will be devoted to the preparation of the thesis, including courses on which the thesis is based. The thesis must be written in acceptable English, show the student's ability to work independently, and demonstrate the student's power of independent thought both in perceiving problems and in making satisfactory progress toward their solution. Familiarity with the bibliography of the special field and correct citation of authorities are expected.

Five copies of the thesis must be provided. Two copies are for the University Library in Minneapolis, one for the Duluth Campus Library, one for the candidate, and normally one goes to the adviser or major department. Three copies must be on 16-pound or 20-pound linen stock of 75 percent rag content, and the other carbon copies must be on 13-pound bond paper. The original and first two carbon copies must contain all illustrative material. Ample margins should be left for binding purposes. The body of the thesis should be double-spaced, but footnotes may be single-spaced. Multigraph, multilith, and photocopy methods of reproduction may be accepted, provided that 16- or 20-pound rag content bond is used.

**Registration of the Thesis With the Graduate School**—A complete, clean, typed draft of the thesis, with title page, table of contents, and bibliography, should be presented for registration in the Graduate School office at least 9½ weeks before the commencement at which the candidate expects to receive the degree. The copy will be returned to the candidate immediately, together with the readers' report form and other forms necessary for graduation. When the signed thesis report form is returned, a final examination report form will be issued to the student. The members of the student's examining committee may, at their discretion, require a 30-day interval between the registration of the thesis and the date of the final examination.

The thesis will be examined by a committee of not less than three members, appointed by the dean of the Graduate School. The examining committee will include at least two representatives of the major field and one representative of the related or minor field. This committee must be unanimous in certifying that the thesis is ready



for defense, and a record of this action must be filed in the Office of the Assistant Dean of the Graduate School on the appropriate form before the candidate may be admitted to the final written or oral examination.

A candidate contemplating publication of any material that she or he expects to present for a thesis should arrange through the Graduate School office to obtain approval, since no material that has been published prior to its approval by the thesis committee may be used to meet the thesis requirement.

If the thesis is accepted, the candidate should immediately begin to have it typed in its final form and should pay the graduation fee in the Office of the Assistant Dean of the Graduate School. This fee must be paid *at least 5½ weeks* prior to commencement. Three bound copies of the thesis, including the original, must be submitted to the UMD Graduate School office *at least 3 weeks* prior to commencement.

**Examinations**—All candidates for the master's degree will meet the regular requirements for examinations, reports, etc., of the classes in which they are registered.

The adviser is expected to contact the Graduate School office before the student's final examination for the degree to obtain an examination report form for use by the student's committee.

In addition to the usual course examinations, the candidate for the master's degree under Plan A must pass a final written examination, a final oral examination, or both, at the discretion of the examining committee. The examining committee must determine the appropriate course of procedure collectively.

If only a final written examination is specified, it must be held no later than *5½ weeks* before the end of the quarter in which the student takes the degree. It will cover the major and minor fields and may include any work fundamental thereto. This examination will be arranged by the adviser, who acts as chairperson of the thesis committee. The questions are to be prepared with the cooperation of the graduate faculty of the major and minor concerned. The chairperson will report the results of the examination to the Office of the Assistant Dean of the Graduate School on the appropriate form. A majority vote of the committee is required for approval of the written examination.

If both a written and an oral examination are specified, the written examination must precede the oral examination, and the time of completion of the oral examination specified above must be adhered to. Committee certification of the thesis must precede the final oral examination.

**Reports**—Forms are provided for signed reports concerning the thesis and the final written or oral examinations. All reports must be filed in the Office of the Assistant Dean of the Graduate School *5½ weeks before the end of the student's last quarter*.

**SUMMARY OF REQUIREMENTS FOR THE MASTER'S DEGREE WITH THESIS**

Requirements	Under the Direction of	Date
Initial registration	Adviser and assistant dean	On entrance
Approval of degree program, language choice, and thesis subject	Adviser, committee (normally from the major department, school, or college), the director of graduate studies and dean of the Graduate School	After completion of 9 to 15 credits or no later than the opening of quarter preceding final quarter or summer term
Language requirement (completion)	Adviser and language department	Before admission to written or oral examination
Registering of thesis	Assistant dean's office	9½ weeks before graduation
Certification of thesis	Thesis committee	Before admission to final written or oral examination

Final examinations, written or oral or both	Major adviser and committee	} No later than 5½ weeks before commencement in which the student takes the degree
Filing of thesis	Assistant dean's office	
Graduation fee	Assistant dean's office	

### Plan B: Master's Degree Without Thesis

The requirements for this plan follow Plan A in matters of admission, residence, and language requirements. Under Plan B, the student must pass either a final written examination or a final oral examination, or both, at the discretion of the examining committee. The committee must meet collectively and determine the appropriate course of procedure. The examination, if oral, will normally be an hour long. Plan B differs from Plan A in substituting for the thesis a heavier course requirement. For professional purposes, the master's degree program under Plan B is less a test of research interest and more adapted to individuals who will profit by a broader range of knowledge in their fields. Whether taken for professional or personal purposes, the requirements for Plan B are meant to test interests and intellectual abilities for a different purpose, but not on a different level, from that for Plan A.

Under Plan B, candidates for the master's degree must complete, with a GPA of 2.80, a minimum of 44 quarter credits in graduate courses. Certain departments may require a higher average. At least 20 of the 44 credit hours must be in the major field, and at least 8 credits must be in related field(s) outside the major. The remaining credits to total 44 may be in either the major or related field(s). Normally it is expected that a majority of the credits in the program will be in the major field. These are minimum credit requirements, and some major fields require additional work. Plan B projects are required, and these take a minimum of 120 clock hours of effort on the part of the student. This requirement may be satisfied through papers written in conjunction with regular courses, papers written in specially designed courses, presenting a studio show (art), or other methods. Students should consult individual programs concerning the projects requirement. The work may be done either in the major field or in related field(s).

In cases where the student takes course work beyond the minimum requirements, both the adviser and the Graduate may demand comparable standards of performance for all work taken, in evaluating and approving the minimum program submitted, and may reject the minimum degree program if the GPA for the total number of courses taken falls below 2.80 and may also terminate candidacy.

Intelligent planning of the degree program requires that the student present to the adviser a statement of all college work completed with credit. In planning the program the student should not include in "related fields" any courses from the field of concentration.

Under this plan, the candidate will be examined by a committee of not less than three members, normally two from the major field and one from a related field, appointed by the dean of the Graduate School upon recommendation of the adviser and the director of graduate study. The adviser is expected to contact the Graduate School office before the student's final examination for the degree to obtain an examination report form for use by the student's committee. The student will make available to the examining committee for its review the projects prepared to fulfill the required 120 clock hours of effort, within an adequate period of time to allow for evaluation prior to the examination(s). Procedures for the examination(s) are the same as those already described for the master's degree under Plan A.

**SUMMARY OF REQUIREMENTS  
FOR THE MASTER'S DEGREE WITHOUT THESIS**

<i>Requirements</i>	<i>Under the Direction of</i>	<i>Date</i>
Initial registration	Adviser and assistant dean	On entrance
Approval of program of all graduate work, with credits, showing major field and language choice	Adviser, committee (normally from the major department, school, or college), director of graduate studies, and dean of the Graduate School	After completion of 9 to 15 credits or no later than the opening of quarter preceding final quarter or summer term
Language requirement (completion)	Adviser and language department	Before admission to written or oral examination
Final examinations, written or oral or both	Adviser and committee	No later than 5½ weeks before commencement in which student takes the degree
Graduation fee	Assistant dean's office	

**TERMINATION OF GRADUATE STUDENT STATUS**

When performance is unsatisfactory in terms of grades or normal progress, as established and promulgated by the graduate faculty in the major field, graduate student status may be terminated. All guidelines stated in this bulletin represent minimal requirements, and each program is free to set more specific terms by which progress will be measured for purposes of continuation. Notice of termination will be in writing.

**ATTENDANCE AT COMMENCEMENT**

Attendance at commencement is voluntary. However, all candidates are individually recognized at the ceremony and must inform the Graduate School whether or not they will attend.

**GRIEVANCE PROCEDURES:  
ACADEMIC FREEDOM AND RESPONSIBILITY**

Grievance procedures relating to academic freedom and responsibility are governed by the University Senate Statement on Academic Freedom and Responsibility of December 17, 1970, and the Revised Report of the University Appeals Committee on Academic Freedom and Responsibility of April 18, 1974. As a consequence of these policies, each department or program has available a set of operating procedures to deal with both the formal and informal aspects of possible grievance matters; often these procedures are spelled out in a department's or program's handbook for graduate students or are available upon request in the department or program office. Also as a consequence of the two Senate policies, each department or program has established a standing committee on grievances to conduct hearings and make recommendations in those cases that reach the formal grievance stage.

In general, it is best for graduate students with a grievance to seek the advice and assistance of their adviser or director of graduate study and the department or program chairperson. In the event that the nature of the grievance precludes such inquiry and discussion, graduate students may wish to seek advice from the Graduate School grievance officer by contacting the Graduate School dean's office. There is a Graduate School Grievance Committee, but its function is essentially limited to hearing appeals from department or program grievance committees.



## DEPARTMENTAL STATEMENTS

A synopsis of information concerning each major field is listed below. This information is subject to change at any time. Further details are available from the directors of graduate study designated for the various majors. Courses in each area are listed in the Course Listings section of this bulletin under the departmental headings.

General information concerning graduate work on the Duluth campus may be obtained from the Office of the Assistant Dean. The University of Minnesota *Graduate School Bulletin* may be obtained in person from the Office of the Assistant Dean, 431 Administration Building, UMD, or may be requested by mail by writing to the Graduate School, 316 Johnston Hall, 101 Pleasant Street S.E., University of Minnesota, Minneapolis, Minnesota 55455. The ZIP code of the recipient is required for the mailing of all bulletins.

### ART

*Degree*—M.A. (Plan B) Education (Emphasis Art)

M.A. (Plan B) with emphasis in studio work

*Director of Graduate Study*—Associate Professor Philip K. Meany

**Prerequisites for Admission**—This degree program is designed for those interested in either teaching or practicing art. The Department of Art will consider the B.A., B.S., or B.F.A. degree with a major in art or an equivalent background in the visual arts as adequate preparation for beginning the degree. In most cases, a portfolio or slides of original work or tapes and film of art activities will be requested. Background deficiencies in undergraduate preparation will be made up through courses taken concurrently with graduate work.

### M.A. Degree—Education (Emphasis Art)

Candidates for this degree must have teacher certification but may make up educational prerequisites concurrently with graduate work. In general, the studio courses taken should be in several areas rather than in an area of concentration as is often found in the M.A. program in studio art. The education degree requires a research project of 9 credits in an area of art education that satisfies the requirement for the Plan B projects. The final oral examination will cover the contents of this research and its supporting paper.

This degree may be completed in 3 quarters plus summer work or by attendance in several summer sessions. A minimum of 44 quarter credits is required in the following areas:

#### SUGGESTED PROGRAM

	Credits
Major—Art Education and Education .....	20
Related Field—Studio Art .....	16
Second Related Field—Art History .....	8
Total	44

### M.A. Degree—Studio Art

Recommendation for admission to this program and approval of the student's creative project and supporting paper is made by the departmental graduate committee. Normally the committee nominates an appropriate faculty member to direct the



development of the creative project and supporting paper. A satisfactory exhibition of the student's work in the Tweed Museum of Art is a major requirement for the M.A. in studio art degree. An oral examination covering course work and the area of the supporting paper is the final step in completion of the degree.

While concentration in one of the studio areas may be desirable in certain cases, it is expected that students interested in teaching will plan work in several studio areas. It is recommended that art history be used as one of the related areas by all students. For those students whose objective is teaching, art education is recommended as the second related field. Full-time attendance for 3 quarters plus summer work is necessary in most cases to complete the M.A. in studio art degree. A minimum of 44 quarter credits is required in the following areas:

**SUGGESTED PROGRAM**

	Credits
Major—Studio Art .....	30
Related Field—Art History .....	14
	<hr/>
	Total 44

In general, all candidates should have a B average overall in undergraduate course work, a minimum of low grades in any area, and relatively high achievement in the major field. Applicants for graduate teaching assistantships should submit personal recommendations and slides of major studio projects after acceptance into the program.

**BIOLOGY**

*Degree—M.S.—Plan A* in biology with areas of concentration in botany, zoology, environmental biology, cellular and physiological biology (subject to approval by the Board of Regents)  
*Plan B* in biology

*Director of Graduate Study—Associate Professor Stephen C. Hedman*

**Prerequisites for Admission—**(1) Introductory biology plus at least 24 additional quarter credits of approved course work in biology; (2) inorganic and organic chemistry; (3) introductory calculus; and (4) a completed sequence in general or introductory physics.

Students with deficiencies may be admitted with the provision that equivalent course work or approved substitutions be completed during the first year of graduate study.

Applicants must also submit scores (no mor than 2 years old) from the Graduate Record Examination Aptitude Test (verbal and quantitative sections) and the Advanced Test in Biology as part of their application materials.

Prior course work and/or Graduate Record Examination scores will be used to ascertain proficiency in the areas of general biology, genetics, cell biology, and ecology. Such proficiency will be considered in the admission deliberations.

**Language Requirement—**None.

**Major Requirements—**Twenty credits in the major field for both Plan A and Plan B. Under Plan A, the specific courses must be appropriate to the particular area of concentration that is selected. Final selection of courses for both plans will be made by the student in consultation with the advisement committee.

**Related Field or Minor Requirements**—For Plan A, 8 additional credits must be taken in a related field(s) or a minimum of 9 additional credits in a single field that constitutes a minor. For Plan B, 8 additional credits must be taken in a related field(s).

**Other Requirements**—*Plan A:* Thesis. *Plan B:* Additional credits to total 44 and the completion of one to three Plan B projects. Candidates following either Plan must present a departmental seminar near the end of their studies and must successfully pass written and/or oral final examinations.

## BUSINESS ADMINISTRATION

*Degree*—M.B.A. (Plan B)

*Director of Graduate Study*—Professor Richard O. Sielaff

**Language Requirement**—None.

**Credit Requirements**—A minimum of 45 credits.

**Major Field Requirements**—A total of 27 credits in 8000-level courses in business administration, accounting, and economics. In addition, 9 credits must be taken in graduate business administration courses that require research papers.

**Related Field Requirement**—A total of 9 credits in supporting fields.

## CHEMISTRY

*Degree*—M.S. (Plan A or B)

*Director of Graduate Study*—Professor James C. Nichol

**Prerequisites for Admission**—Undergraduate chemistry major, including a course in junior-senior level inorganic chemistry, 1 year of physical chemistry, mathematics through calculus, and 1 year of college physics, preferably taught using calculus. Students lacking some of these prerequisites may be allowed to make them up concurrently with their graduate work.

**Language Requirement for Plan A:** Proficiency in German, with substitution or waiver permitted in special cases by petition to the department. Proficiency may be demonstrated (a) by completion of 10 credits of college work with a grade of B or better, or 15 credits with a grade of C (the equivalent in transfer credits may be accepted), or (b) by earning a passing grade on the language examination administered by the Graduate School.

**Thesis Research Areas for Plan A**—Analytical chemistry; biochemistry; inorganic chemistry; organic chemistry; physical chemistry.

**Major Requirements**—Twenty credits in the major field for both Plan A and Plan B. The specific program is worked out to best serve the interests of the student. All students must take at least three of the five core courses: Chem 5710, 5720, 5730, 5740, and 5750.

**Related Field Requirements**—Eight credits in a related field(s). Students who elect a minor for Plan A must complete a minimum of 9 credits in a single related field.

**Other Requirements**—*Plan A:* Thesis. *Plan B:* A total of 44 credits in graduate courses and a Plan B project consisting of the preparation of three papers in courses. A final oral examination for Plan A and a final oral or final written examination for Plan B may be required at the discretion of the examining committee. For both Plan A and

Plan B, proficiency examinations must be taken prior to initial registration. Attendance and formal presentation at the chemistry seminar are required.

### COMMUNICATIVE DISORDERS

*Degree*—M.A. (Plan B)

*Director of Graduate Study*—Associate Professor John T. Hatten

**Prerequisites for Admission**—Bachelor's degree in communicative disorders (speech pathology) or 49 quarter hours in speech pathology, audiology, and speech science. (Although no specific number of clinical clock hours are required for admission, candidates with fewer than 100 supervised clock hours of clinical practice may need additional time to complete the degree.)

**Language Requirement**—None.

**Major Requirements**—Thirty credits to include core courses CD 8050, 8075, 8100, 8105, 8175 for a total of 12 credits, and 18 elective credits from remaining departmental offerings.

**Related Field Requirements**—Minimum of 8 credits from related areas.

**Other Requirements**—Final written and oral examinations. Plan B projects may be completed in conjunction with any clinical seminar course, through independent study using the CD 8900 projects course, or through independent projects. All such projects must be planned and implemented in consultation with a faculty member in the department.

### EDUCATION

*Degree*—M.A. (Plan B) (for elementary and secondary teachers)

*Directors of Graduate Study*—Professor William C. Gemeinhardt (for elementary teachers); Professor Valworth R. Plumb (for secondary teachers)

Interested students should contact the elementary or secondary education departmental office to obtain information concerning new programs or modifications in old ones that may not be included in the current bulletin.

**Prerequisites for Admission**—A minimum of 15 quarter-hour credits in undergraduate work in education. Heavy emphasis is placed on the quality of prior academic work as an indicator of future academic performance. The Graduate School faculty reviews all applications, and the final decision on admission rests with the dean of the Graduate School.

**Language Requirements**—None.

**Credit Requirements**—A minimum total of 44 credits is required. Of this total, a minimum of 20 credits must be completed in the major field. The credits for the Plan B project or projects (4-9 credits) are to be included in the major. A minimum of 8 credits must be completed in one or more related fields outside the major.

For information about the master of education degree program see the section on the College of Education.



## EDUCATION (EMPHASIS MUSIC)

*Degree*—M.A. (Plan B)

*Director of Graduate Study*—Associate Professor Jean P. Swanson

**Prerequisites for Admission**—Candidates for this degree must have an undergraduate degree with a major emphasis in music. Ordinarily, applicants should qualify for a teaching certificate.

**Language Requirement**—None.

**Major Requirements**—The M.A. in education (emphasis music) requires a minimum of 44 credits for graduation. A minimum of 27 credits is required in music education. The research project for 9 credits is included in the 27 hours and meets the requirement for the Plan B project. The final examination will cover the research area of the project.

**Related Field(s) Requirement**—A minimum of 12 credits is required in the related field of music. Areas outside of music education and music may be included to reach the 44 credits required for the degree.

### SUGGESTED PROGRAM

	Credits
Major—Music Education and Education .....	(minimum) 27
Related Field Music .....	(minimum) 12
Additional credits in music education, music, or related areas .....	5
Total (minimum)	44

## EDUCATIONAL ADMINISTRATION

*Degree*—M.A. (Plan B)

*Director of Graduate Study*—Assistant Professor Karl J. Vander Horck

**Prerequisites for Admission**—Bachelor's degree and elementary teaching certification for those desiring to qualify for elementary principalship, or secondary teaching certification for those desiring to qualify for secondary principalship. Students must apply for admission to the Graduate School. Applicants must have a strong academic background with reasonable breadth of subject matter interest. Candidates for admission will be screened by a reviewing committee. A personal interview may be required.

**Language Requirement**—None.

**Credit Requirements**—A minimum total of 44 credits is required for the M.A.

**Major Requirements**—A minimum of 20 credits must be completed in the major field, with a field of concentration in either elementary or secondary administration. Each student will complete one to three Plan B projects; the number will be determined by the adviser and the student. A minimum of 4 credits and a maximum of 9 credits may be devoted to Plan B projects. These credits may be applied to the major requirement.

**Related Field Requirements**—At least 8 credits must be earned in one recommended related field outside the major and the balance of the credits from selected relevant courses.



**Other Requirements**—Final oral or written examination, or both.

### Specialist Certificate

*Director of Graduate Study*—Assistant Professor Karl J. Vander Horck

**Prerequisites for Admission**—Students must apply for admission to the Graduate School. Applicants must have a strong academic background with a reasonable breadth of subject matter interest. Submission of scores from the Miller Analogies Test is required, and an interview may be required by the Committee on Educational Administration.

**Language Requirements**—None.

**Credit Requirements**—A minimum total of 90 credits beyond the bachelor's degree.

**Major Field Requirements**—A minimum of 42 credits with a field concentration in elementary, secondary, or general school administration. A 6-credit field study paper and an internship are required. In exceptional cases the internship may be waived.

**Related Field Requirements**—A minimum of 36 credits in supporting courses outside educational administration, including 9 credits in related academic areas.

The specialist certificate program places greater emphasis on extended research competencies than is expected in either the M.A. or the sixth year program.

Students with a master's degree in educational administration will normally be able to apply all of their course work to the program (45 quarter credits). Students with a master's degree in other areas may be required to take additional course work.

For information concerning the program and other requirements, consult the assistant dean of the Graduate School at UMD or the director of graduate study in educational administration.

**Other Requirements**—Final oral or written examinations, or both.

**Sixth Year Program**—The sixth year program, leading to certification of school administrators, is *not* a Graduate School program. Refer to the section on the College of Education for information about this program.

## EDUCATIONAL PSYCHOLOGY

*Degree*—M.A. (Plan B)

*Director of Graduate Study*—Professor Moy F. Gum

**Prerequisites for Admission**—A minimum of 6 quarter credits in psychology, satisfactory performance on the Miller Analogies Test, evidence of social service activities and experiences related to guidance interests, and recommendation of the previous employer. Successful teaching is helpful (required for most state public school certification).

**Language Requirement**—None.

**Major Requirements**—50-60 graduate credits in psychological foundations (PsyF) and psychological applications (PsyA), of which 9 credits will count toward the research project requirement (see below).

**Related Field Requirements**—A minimum of 8 credits must be taken outside of the major.

**Other Requirements**—Completion of research papers (PsyF 8050) totaling 9 credits that constitute the Plan B projects, final written comprehensive examination, and, when required, an oral examination.

## ENGLISH

*Degree*—M.A. (Plan B)

M.A. (Plan B) with emphasis on teaching

*Director of Graduate Study*—Professor Albert Tezla

### M.A. (Plan B)

**Prerequisites for Admission**—A minimum of 27 quarter credits in English literature, 12 of which must be in the upper division, including satisfactory courses in Chaucer, Shakespeare, Milton, and the English language. Certain course prerequisites may be taken concurrently with graduate work.

Candidates will ordinarily find it necessary to supplement their undergraduate work with a considerable amount of independent reading.

**Language Requirement**—Satisfactory performance on a language reading examination in French, German, Latin, Greek, Italian, Spanish, or Russian.

**Major Requirements**—20-36 credits.

**Related Field Requirements**—A minimum of 8 credits in one or more related fields outside the Department of English.

**Other Requirements**—A 2-day, 5-hour written examination containing the following sections: (1) analysis of a text assigned before the examination; (2) questions on a reading list of 25-30 works covering the range of English and American literature; and (3) questions on a related field.

Before taking the examination, the student must submit a project (normally a paper) or projects totaling 120 hours of effort. These projects will normally be completed in connection with graduate courses in English or in a related field. A completed project must be approved by a member of the graduate faculty.

### M.A. (Plan B) With Emphasis on Teaching

**Prerequisites for Admission**—This program is designed to prepare students for teaching in a 2-year college or secondary school. The entering student should have completed 32 credits in English literature, including 16 in the upper division.

**Language Requirement**—Same as for the regular M.A. program.

**Major Requirement**—A minimum of 28 credits in the following areas: literary analysis, language and composition, methods (English education), and electives (English literature).

**Related Field Requirement**—A minimum of 8 credits in one or more related fields outside the Department of English. This requirement can be fulfilled by 9 credits of speech-communication or by a minimum of 6 credits of speech-communication and at least 2 credits in another field approved by the student's adviser.

**Other Requirements**—The candidate will take a comprehensive examination, which will have both written and oral sections. The examination will test the student's

knowledge in the following areas: literary analysis, language and composition, methods, and speech-communication.

Plan B projects requirement is the same as for the regular M.A. program.

### GEOLOGY

*Degree*—M.S. (Plan A or B)

*Director of Graduate Study*—Professor Donald M. Davidson, Jr.

**Prerequisites for Admission**—Undergraduate major in geology, geophysics, or related earth sciences with 1 year each of college mathematics including calculus, college chemistry, and college physics. Candidates with degrees in chemistry, physics, biology, engineering, or other disciplines may be admitted on an individual basis.

**Language Requirement**—None.

**Requirements**—*Plan A*: Thesis. *Plan B*: Acceptable papers. Advisory examination during the first quarter of residency. Final oral examination.

### HISTORY

*Degree*—M.A. (Plan A or B)

*Director of Graduate Study*—Associate Professor Judith Ann Trolander

**Prerequisites for Admission**—(1) General survey courses in at least two of the following areas or periods: ancient, European, English, or American; (2) a minimum of two full-year advanced or upper division courses (or their equivalent in two of these areas or periods), including at least one course in which intensive work has been completed.

**Language Requirement**—Candidates for the master's degree in history will ordinarily be expected to demonstrate satisfactory performance on a language reading examination in French, German, Spanish, or another language acceptable to the department, or submit evidence of prior achievement as specified in the general language requirement. In some cases candidates may receive special permission from the department to substitute other pertinent skills or training for the language requirement.

**Requirements for Plan A**—A thesis is required. In addition, the student must complete at least 20 credits in history, including Hist 8001 and 8 credits of seminar or proseminar courses. At least one or more related fields containing a minimum of 8 credits is also required. The remainder of the credit requirement will be determined by the student in consultation with the adviser. Candidates are required to take a final oral examination covering the thesis, major, and related field. A written examination may be required at the discretion of the examining committee.

**Requirements for Plan B**—The student must earn at least 20 credits in history, including Hist 8001 and 8 credits of seminar or proseminar courses. The student must also complete at least one or more related fields containing 8 credits, plus the Plan B projects. Plan B projects, whether one, two, or three in number, will total 120 hours of effort. Under Plan B, candidates for the master's degree must earn a minimum of 44 quarter credits in graduate courses. The remainder of the credit requirement will be determined by the student in consultation with the adviser. The final oral examination will cover the minor and related fields. A written examination may be required at the discretion of the examining committee.



## PHYSICS

*Degree*—M.S. (Plan A)

*Director of Graduate Study*—Associate Professor B. C. Casserberg

**Prerequisites for Admission**—Undergraduate degree in physics or equivalent.

**Language Requirement**—None.

**Major Requirements**—A minimum of 20 credits in 6 units of approved physics courses numbered above 5103 and including at least 8 credits chosen from 5123 or 5124 or 5125 (no more than one of these three courses), and 5109, 5166, 5174, 5176, 5177, and 5178.

**Related Field Requirements**—8 credits in related fields. These cannot be in physics but can include courses from more than one department; for example, courses in biology, chemistry, or geology to provide an interdisciplinary approach to environmental problems. A student who wants a traditional minor must take a minimum of 9 credits in one department outside physics.

**Other Requirements**—Thesis; written comprehensive examination; final oral examination.

## SCHOOL OF SOCIAL DEVELOPMENT

*Degree*—M.S.W. (Plan B)

*Director of Graduate Study*—Associate Nancy R. Hooyman

For a description of the social development emphasis, see the section on the School of Social Development.

**Prerequisites for Admission**—*Ninety-Credit Program*: Completion of at least one academic course in each of the following five areas: anthropology/sociology, economics, political science, psychology, statistics. Deficiencies in these areas may be satisfied concurrently with the graduate program. All other qualifications being equal, applicants with work experience in the human services field will be given preference.

*Sixty-Credit, Advanced Standing Program*: Completion of a bachelor's degree in an undergraduate program equivalent to the B.S.D. Completion of at least one academic course in each of the following five areas: anthropology/sociology, economics, political science, psychology, statistics. Deficiencies in any of these areas must be made up prior to and as a condition of matriculation. Completion of 2 full years of work experience in the human services field. All other qualifications being equal, preference will be given to applicants whose work experience includes application of skills in administration, human service planning, policy development, community organization, and research.

**Language Requirement**—None.

**Degree Requirements**—(1) 90 credits of graduate-level work—students who qualify for and are admitted to advanced standing will complete 60 credits of graduate-level work; (2) 69-72 credits of required course work—students who qualify for and are admitted to advanced standing will fulfill alternate requirements; (3) completion of a field project that demonstrates a level of personal and professional competence considered satisfactory for entrance into the professional field of social work in the area of social development; (4) completion of the Plan B project requirement—

i.e., preparation of a paper written in relation to any graduate course offered in the School of Social Development that carries 9 or more credits, or preparation of three papers, each written in relation to any graduate course in the School of Social Development that carries 3 or more credits (special permission is required to write one or more of these papers in relation to courses taken outside the School of Social Development); and (5) satisfactory performance on the final examination.



## X. COURSE LISTINGS

The following is a comprehensive listing of all courses offered regularly by UMD academic units. The courses are listed alphabetically by study field, and the collegiate unit responsible for each course is shown in abbreviated form to the extreme right of the study field identification. For additional information about courses, please contact the appropriate college or department.

### ACCOUNTING (Acct)

(SBE)

- 1505. THE ACCOUNTING PROCESS.** (4 cr; prereq 1504)  
The measurement of accounting income; development of accounting reports; preparation of financial statements; effect of price-level changes; evaluation of assets, liabilities, and equities.
- 1511. FINANCIAL ACCOUNTING I.** (3 cr, §1504; prereq 3rd-qr fr)  
Accounting as a means of communicating financial information to external parties in society; the process of recording, classifying, measuring, and reporting business data stressing the balance sheet and income statement; accounting for monetary and fixed assets.
- 1512. FINANCIAL ACCOUNTING II.** (3 cr, §1505; prereq 1511)  
Accounting concepts and principles underlying inventories, current and long-term liabilities, corporation and partnership accounts, the statement of changes in financial position, price-level changes, and other special topics.
- 1513. MANAGERIAL ACCOUNTING.** (3 cr, §3512; prereq 1512 or #)  
Analysis and use of accounting information primarily from the standpoint of the internal management decision maker; accounting for manufacturing operations; analysis of financial statements.
- 3501. INTERMEDIATE ACCOUNTING I.** (4 cr; prereq prebusiness or #)  
The search for principles and postulates of accounting, with emphasis on the timing of revenue recognition and expense matching; concepts of income, and the impact of inventory measurement on its determination.
- 3502. INTERMEDIATE ACCOUNTING II.** (4 cr; prereq 3501 or #)  
Application of concepts examined in 3501 to all traditional balance sheet components; and a probing of possible future changes in the reporting of financial condition and results of operations of business firms, with a view toward providing more useful information to the firm and its many publics.
- 3503. INTERMEDIATE ACCOUNTING III.** (4 cr; prereq 3502)  
Financial reporting to investors and interested external parties. Topics include income tax allocation, changes in financial position, price-level and current value accounting, analysis of financial statements, consignments, and installment sales.
- 3507. COST ACCOUNTING I.** (4 cr; prereq prebusiness or #)  
Practices, principles, and procedures of handling production costs for use in inventory valuation and income determination. Applications of cost information in management decision making.
- 3512. MANAGERIAL ACCOUNTING.** (4 cr, §3507; prereq prebusiness or #)  
Use of accounting data by management in planning and controlling business activities: application of quantitative techniques in management decision making.
- 3514. FUND ACCOUNTING** (3 cr; prereq 1512 or #)  
Fund, budget, municipal, and governmental accounting examined for needs of administration and management of governmental units and other not-for-profit organizations.
- 3544. INCOME TAX ACCOUNTING.** (4 cr; prereq 1512 or #)  
Principles involved in determining taxable net income and computation of federal and state income taxes. Individual and corporation taxes are emphasized.
- 3546. AUDITING.** (4 cr; prereq 3503 and sr BAc students, or #)  
Theory and procedures in the audit process and completion of an audit case.
- 3548. ACCOUNTING PROBLEMS.** (4 cr; prereq 3503 and sr BAc students, or #)  
A study of accounting problems including areas of partnerships, consolidated financial statements, price-level changes, present-value concepts, businesses in financial difficulties, fiduciary and governmental accounting.



## Course Listings

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- 3554. ADVANCED INCOME TAXATION.** (4 cr; prereq 3544 or #)  
Emphasis on decision making and tax planning. Case studies used for in-depth study of federal and state taxes relating to partnerships, corporations, and associations; corporate distributions and reorganizations; trusts and foundations; estate, gift, and inheritance taxes.
- 3572. INTERNSHIP IN PUBLIC ACCOUNTING.** (5 cr; open only to sr BAc students; prereq 3546 and Δ)  
Student will work full time for 1 quarter in a public accounting firm. Extensive written reports of student's activities, by both the student and employing firm, will be required.
- 3575. INTERNSHIP IN INTERNAL ACCOUNTING.** (5 cr; open only to sr BAc students; prereq 3502, 3507 and Δ)  
Student will work full time for 1 quarter in private industry (profit or nonprofit) or in a governmental unit, in an accounting program first approved by the UMD accounting faculty. Extensive written reports of student's activities, by both the student and employing unit, will be required.
- 3970. INDEPENDENT STUDY.** (1-3 cr; prereq Δ)  
For students wishing to do special work in an accounting area that extends beyond, or in greater depth than, regular course offerings.
- 5501. FINANCIAL ACCOUNTING.** (3 cr, §1505; prereq Δ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
Basic accounting theory and practice. A thorough coverage of the accounting measurement of income and financial position. Emphasis on the analysis of business events and its effect on the financial position and income of the business. Critical evaluation and interpretation of published financial reports.
- 5508. COST ACCOUNTING II.** (3 cr; prereq 3507 or #)  
Use of cost information in managerial decision making.
- 5516. PROGRAM BUDGETING.** (3 cr; prereq sr, grad or #; no prior accounting or business courses required; offered when feasible)  
A systematic approach to strategic planning and decision making with major emphasis on governmental and nonprofit institutions. Implications of the planning, programming, budgeting system in managing the scarce resources available.
- 5523. INTERNATIONAL ACCOUNTING PROCEDURES.** (4 cr; prereq 3502 or #; offered when feasible)  
Examination of accounting standards of various nations and how such differing standards affect the ability of international business firms to report international operations and statements of financial conditions to the publics of different nations.
- 5542. ADVANCED ACCOUNTING PROBLEMS.** (3 cr; prereq sr BAc students, 3548 or #; offered when feasible)  
Study of special problem areas in the field of accounting, with emphasis upon the implication of income, valuation, cost, and taxes on business organizations.
- 5544. FEDERAL TAXES AND MANAGEMENT DECISIONS.** (3 cr, §3554; prereq 5501 or equiv)  
The course concentrates on the study of the federal tax system and its impact on management decisions. Topics include capital gains and losses, types of taxpaying entities, accounting methods, selection of a legal form of business, and tax planning. Tax factors include income, estate, and gift tax considerations.
- 5551. SEMINAR IN ACCOUNTING THEORY.** (3 cr; prereq 3503 and #)  
Inquiry into the development of accounting thought with emphasis upon the economic and social factors. Critical examination of accounting theories and a detailed study of alternative accounting models. Library research and case analysis.
- 8512. MANAGEMENT ACCOUNTING.** (3 cr; prereq 5501 or #)  
Interpretation and use of accounting reports and supplementary information for management planning, coordination and control; emphasis is placed upon the use of accounting information as an aid for decision making in problems of capital budgeting, product mix, cost-volume-profit analysis and other profit planning and control areas.
- 8541. SEMINAR IN CONTEMPORARY ACCOUNTING.** (3 cr; prereq 8512 or equiv)  
Case studies in the role of accounting in society; essentials of accounting measurement; interaction of accounting with other disciplines. Present research activities of the accounting profession. Research methodology in accounting.

## ADULT EDUCATION (AdEd)

(CE)

- 5100. INTRODUCTION TO ADULT EDUCATION.** (3 cr; prereq #)  
A survey of the field; needs, history of the movement, program models, funding, and similar topics.
- 5101. TEACHING ADULT LEARNERS.** (3 cr; prereq 5100)  
The characteristics of adult learners, special problems; sociological and psychological foundations for working with the adult learner.
- 5102. CURRICULUM AND METHODS FOR ADULTS.** (3 cr; prereq 5100 and/or #)  
Reading, math, and language methods for adults; developing curriculum for adult education.

- 5103. TEACHING MATERIALS FOR ADULTS.** (3 cr; prereq 5100, 5102 or #)  
Examination and evaluation of teaching materials for adults in reading, mathematics, and communications areas; preparation of supplementary teaching materials.
- 5104. DIAGNOSIS AND INDIVIDUALIZATION.** (3 cr; prereq 5100, 5102, 5103 or #)  
Advanced techniques of diagnosis of adult learning problems and observation of adult behavior; techniques for individualized prescriptive programming for remediation.
- 5105. TEACHING PRACTICUM WITH ADULTS.** (3-6 cr; prereq #)  
To provide experience in an actual teaching-learning situation with adults.

## AEROSPACE STUDIES (Air)

(CLS)

- 1101. UNITED STATES MILITARY FORCES.** (1 cr; 1 hr lect, 1 hr lab)  
Mission, doctrine, and organization of the United States Air Force. The specific functions of U.S. strategic offensive forces and their employment.
- 1102. UNITED STATES MILITARY FORCES.** (1 cr; 1 hr lect, 1 hr lab)  
The specific functions of U.S. strategic defensive forces and their deployment. The U.S. general purpose forces; Army, Navy, Marines.
- 1103. UNITED STATES MILITARY FORCES.** (1 cr; 1 hr lect, 1 hr lab)  
The U.S. general purpose forces; U.S. Air Force tactical forces. Aerospace support forces and their functions.
- 1201. DEVELOPMENT OF AIR POWER.** (1 cr; 1 hr lect, 1 hr lab)  
Examines the development of air power from its beginning through the interwar years, 1919 to 1941. Technological advances of air power; basic concepts and doctrine contributing to effective use of air power.
- 1202. DEVELOPMENT OF AIR POWER.** (1 cr; 1 hr lect, 1 hr lab)  
Air power during World War II; changes in the nature of military conflicts, massive airlifts, jungle warfare; employment of air power in military and nonmilitary operations.
- 1203. DEVELOPMENT OF AIR POWER.** (1 cr; 1 hr lect, 1 hr lab)  
Role of air power in crisis situations, Cuban missile, Middle East, Southeast Asia; force for stability and peaceful employment of U.S. air power.
- 3301. NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY.** (3 cr; 3 hrs seminar, 1 hr lab)  
The communicative process; the military profession; civil-military interaction. Seminar concept; extensive research with oral and written reports.
- 3302. NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY.** (3 cr; 3 hrs seminar, 1 hr lab)  
The communicative process; the framework of defense policy; the formulation of defense strategy; officer classification and assignments; strategy and the management of conflict. Seminar concept; extensive research with oral and written reports.
- 3303. NATIONAL SECURITY FORCES IN CONTEMPORARY AMERICAN SOCIETY.** (3 cr; 3 hrs seminar, 1 hr lab)  
The communicative process; strategy and the management of conflict; the formulation and implementation of U.S. defense policy making. Seminar concept; extensive research with oral and written reports.
- 3401. LEADERSHIP AND MANAGEMENT.** (3 cr; 3 hrs seminar, 1 hr lab)  
Leadership theory; communications and leadership; challenges to the Air Force officer; behavioral science and Air Force leadership; multidimensional approach to leadership; military justice system; seminar concept; extensive research with oral and written reports.
- 3402. LEADERSHIP AND MANAGEMENT.** (3 cr; 3 hrs seminar, 1 hr lab)  
Styles of leadership; introduction to Air Force management; the planning function of management; seminar concept; extensive research with oral and written reports.
- 3403. LEADERSHIP AND MANAGEMENT.** (3 cr; 3 hrs seminar, 1 hr lab)  
Air Force management; Air Force personnel policies; preparation for active duty; seminar concept; extensive research with oral and written reports.
- 3481. WEATHER AND NAVIGATION.** (3 cr)  
Weather; Federal Aviation Agency regulations; dead reckoning navigation; radio navigation; related topics required for the completion of private pilot's written examination. Required for AFROTC cadets accepted for the Flight Instruction Program. Open to any student interested in preparing to take the FAA written examination for the private pilot's license.

## AMERICAN INDIAN STUDIES (AmIn)

(CLS)

- 1100. INDIAN-WHITE RELATIONS, 1776-1887.** (3 cr)  
Ten significant events of this period and their ramifications for contemporary Indian affairs. Variety of options for fulfilling course requirements.
- 1101-1102. BEGINNING CHIPPEWA.** (5 cr each)  
Speaking and comprehension of basic Chippewa speech patterns. Development of rudimentary reading knowledge.
- 3051. AMERICAN INDIANS IN THE 20TH CENTURY.** (4 cr; prereq one introductory course in the social sciences or #)  
Topical review of Indian-white contacts, circa 1887 to present, including Indian societies' adaptation to contemporary social conditions.
- 3200. PROJECTS IN AMERICAN INDIAN STUDIES.** (5 cr; prereq 1100 or 3051 and #)  
Directed reading, research, or involvement in social action culminating in the preparation of a paper.
- 5910. TOPICS IN AMERICAN INDIAN STUDIES.** (4 cr [may be repeated for a max of 12 cr]; prereq one introductory course in the social sciences or 3051 or #)  
Courses in this series will focus on those areas of particular relevancy to both Indian and non-Indian people in this region. Faculty-student-community consultation will determine topic selection for a given quarter.
- 5920. OJIBWAY HISTORY AND CULTURE.** (4 cr; prereq 1100 or #)  
Anishinabe—Ojibway—Chippewa. Origins and life-style showing relationship between traditional and contemporary times. Emphasis on Minnesota.

## ANTHROPOLOGY (Anth)

(CLS)

- 1602. PREHISTORIC MAN AND CULTURE.** (5 cr)  
Origin and development of extinct and living varieties of human beings and principles of biocultural evolution; growth and differentiation of cultures from their beginnings to the Bronze and Iron ages.
- 1604. CULTURAL ANTHROPOLOGY.** (5 cr)  
Analysis of the range of variation and degree of uniformity in human behavior as revealed through comparative ethnographic study of the major institutions of preliterate societies in all parts of the world.
- 3602. INTRODUCTION TO ARCHAEOLOGY.** (4 cr; prereq 1602 or #)  
Basic principles of archaeology. Survey of world prehistory.
- 3612. PEOPLES AND CULTURES OF MIDDLE AMERICA.** (4 cr; prereq 1604 or #)  
Ethnographic survey of Indian- and Spanish-speaking people of Middle America. Analysis of contemporary cultures and cultural processes that have produced modern Mexican and Central American cultures.
- 3616. CIRCUMPOLAR CULTURES.** (4 cr; prereq 1604 or #)  
Ethnographic account of the traditional and contemporary cultures of ethnic groups in northern Eurasia and northern North America. Analyses of the processes of cultural change that have produced the contemporary situations in these areas.
- 3618. ANCIENT CULTURES OF MIDDLE AMERICA.** (4 cr)  
Archaeological survey of major pre-Hispanic cultures of Mexico and Central America.
- 3620. INDEPENDENT STUDY IN ANTHROPOLOGY.** (1-5 cr [may be repeated for a max of 10 cr]; prereq sociology-anthropology major or minor, jr, sr, or #)  
Directed reading and research leading to the presentation of a paper.
- 3622. PREHISTORIC ARCHAEOLOGY OF OLD WORLD.** (4 cr; prereq 1602 or #)  
Archaeological survey of Europe, Africa, and Asia.
- 3624. ARCHAEOLOGY OF NORTH AMERICA.** (4 cr; prereq 1602 and 1604 or #)  
Archaeological survey of major cultural areas of North America north of Mexico.
- 5616. CULTURE AND PERSONALITY.** (4 cr; prereq 1604, sr or #; offered when feasible)  
The role of culture in forming of personality; problems of individual adjustment to demands of culture. Psychological and sociopsychological approach to culture.
- 5618. SOCIAL ANTHROPOLOGY.** (4 cr; prereq 1604 or #; offered when feasible)  
An analysis of institutional patterns of kinship and marriage, economic, political, legal, and magicoreligious organizations with reference to functional and evolutionary processes, and to anthropological method and theory.
- 5623. APPLIED ANTHROPOLOGY.** (4 cr; prereq 1604, sr or #; offered when feasible)  
Application of anthropology to current problems of government, industry, education, and social welfare planning. Role of anthropology in such administrative activities as technical aid, public health.



- 5625. SPECIAL TOPICS IN ANTHROPOLOGY.** (4 cr [may be repeated for a max of 8 cr]; prereq 1604 or #; offered when feasible)  
A seminar on contemporary topics in selected branches of anthropology.
- 5626. DEVELOPMENT OF ANTHROPOLOGICAL THEORY.** (4 cr; prereq 1604 or #)  
Theoretical perspectives in anthropology from mid-19th century to the present; examination of several major theorists central to the development of the discipline.
- 5630. HUMAN ECOLOGY.** (4 cr; prereq 1604 and #)  
An in-depth study of some of the methods and concepts concerning the interrelations of certain human populations and their environments in diverse natural, cultural, historical, and evolutionary settings.
- 5650. ARCHAEOLOGICAL METHODS.** (4 cr; prereq 3602 or #)  
Research and interpretation methods with emphasis on nonfield techniques including laboratory investigations in dating methods, chemical analysis, archaeological drafting, lithological analysis, and ceramic typology.
- 5652. INDEPENDENT STUDY IN ARCHAEOLOGY.** (1-5 cr [may be repeated for a max of 5 cr]; prereq 3602 and #)  
Directed reading and research leading to the presentation of a paper.

## ART (Art)

(SFA)

### CERAMICS

- 1400. CERAMICS.** (3 cr; prereq 1002, 1010, 1012 or #)  
Hand forming methods, decoration, glazing, elementary glaze chemistry, and firing of pottery.
- 1405. CERAMICS.** (3 cr; not for art majors or minors; prereq 1002 or #)  
Elementary forming, decorating, glazing, and firing techniques.
- 1406. FUNDAMENTALS OF CERAMICS.** (3 cr [may be repeated for a max of 6 cr]; not for art majors or minors)  
Forming and decorating techniques, glaze experiments and kiln operations.
- 3401. CERAMICS.** (3 cr; prereq 1400)  
Emphasis on wheel forming, glazing, and firing.
- 3402. CERAMICS.** (3 cr; prereq 3401)  
Individual supervised study; creative projects in ceramics and chemistry of glazes.
- 5450. CERAMICS.** (3 cr [may be repeated for a max of 6 cr]; prereq 3401 or #) Kerrigan  
Research in studio projects; glaze and body chemistry; ceramic sculpture.
- 5451. ADVANCED CERAMICS.** (3 cr [may be repeated for a max of 6 cr]; prereq 5450 or #) Kerrigan  
Kiln operation and design; studio management; practical problems involving the professional potter and teacher.
- 5473. WORKSHOP IN ADVANCED CERAMICS.** (6 cr [may be repeated for a max of 12 cr]; prereq 3401 or #; offered summer only) Kerrigan, guest artist  
Individual supervised study; creative projects in ceramics and ceramic sculpture and study of glazes and body chemistry.
- 5491. INDIVIDUAL STUDY IN CERAMICS.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and  $\Delta$ ) Kerrigan
- 8460. ADVANCED CERAMICS.** (3 cr [may be repeated for a max of 9 cr]; prereq 6 cr of 5450) Kerrigan  
Development of an individual style in decoration and form.
- 8461. CERAMIC GLAZE FORMULATION.** (3 cr [may be repeated for a max of 9 cr]; prereq 6 cr of 5451) Kerrigan  
Research in glazes and related decorating techniques.
- 8462. CLAY AND CERAMIC BODIES.** (3 cr; prereq 6 cr of 5451) Kerrigan  
Characteristics of clay and compounded bodies.
- 8463. KILNS, CONSTRUCTION AND OPERATION.** (3 cr [may be repeated for a max of 6 cr]; prereq 6 cr of 5451) Kerrigan  
Theory of kiln design, construction, and firing.

### CRAFTS

- 1500. CRAFTS.** (3 cr; prereq 1002, 1011 or #)  
Jewelry and basic crafts.
- 3501. CRAFTS.** (3 cr; prereq 1500)  
Metal casting, mosaics, advanced jewelry.

## Course Listings

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**3502. CRAFTS.** (3 cr; prereq 3501)

Individual supervised study; specialization in a particular craft medium or material.

**5552. JEWELRY AND METALS.** (3 cr [may be repeated for a max of 6 cr]; prereq 1500, 3501 or #) Schauer  
Advanced work in jewelry casting, fabricating, and other metal techniques of special interest.

**5573. WORKSHOP IN ADVANCED CRAFTS.** (6 cr [may be repeated for a max of 12 cr]; prereq #; offered summer only) Schauer or guest artist  
Creative work in any of the major crafts of jewelry, casting, gem cutting, weaving, textiles, leather, mosaics, and other crafts of interest.

**8560. MULTIMEDIA RESEARCH IN CRAFTS.** (3 cr [may be repeated for a max of 6 cr]; prereq 5550 or #) Schauer  
Individualized study in crafts and design leading to intermixing of media and concepts in creative art expression.

### DESIGN

**1011. DESIGN.** (3 cr; prereq 1002 or  $\Delta$ )

Introduction to design in art and nature through a study of primary elements and structural aspects and exploration of the application of these elements in various media.

**1012. 3-D DESIGN.** (3 cr; prereq 1002 or  $\Delta$ )

An introduction to basic concepts and materials of three-dimensional form and space.

**1018. POSTER DESIGN.** (3 cr [may be repeated for a max of 6 cr]; prereq 1010)

The art of poster design as an extension of the visual arts.

**5550. DESIGN.** (3 cr [may be repeated for a max of 6 cr]; prereq 3501 or #) Schauer

Opportunity to apply design principles to creative aesthetic problems on an advanced experimental level.

**5551. ADVANCED DESIGN.** (3 cr [may be repeated for a max of 6 cr]; prereq 5550 or #) Schauer

Individual supervised study; research and application of contemporary design theory in precious and nonprecious metals, gem cutting, leather, wood, fiber, and any other design materials.

**5591. INDIVIDUAL STUDY IN DESIGN.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and  $\Delta$ )  
Schauer

### DRAWING

**1010. DRAWING.** (3 cr; prereq 1002 or  $\Delta$ )

Introduction to the drawing experience and other problems concerned with the translation of three-dimensional visual experience into two-dimensional form.

**3102. DRAWING OR PAINTING.** (3 cr; prereq 3101)

Individual supervised study; creative projects in drawing and painting.

**3710, 3711, 3712. DRAWING.** (2 cr each; prereq 1010, 1011, 1012)

Intermediate drawing from still life, figure, and landscape.

**5750. ADVANCED DRAWING.** (3 cr [may be repeated for a max of 6 cr]; prereq 3710, 3711, 3712 or #) Meany

Individually supervised projects supporting the involvement in other studio areas.

**5791. INDIVIDUAL STUDY IN DRAWING.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and  $\Delta$ )  
Meany

### PAINTING

**1100. PAINTING.** (3 cr; prereq 1002, 1010, 1011 or #)

Basic concepts in form, color, space, with water-based and oil media.

**1125. WATERCOLOR PAINTING.** (3 cr; prereq 1010, 1011, 1012)

Watercolor, gouache, and other water-based media.

**3101. PAINTING.** (3 cr; prereq 1100)

Experiences with pictorial structures with an emphasis on creative expression using oils, acrylics, and mixed media.

**3102. DRAWING OR PAINTING.** (3 cr; prereq 3101)

Individual supervised study; creative projects in drawing and painting.

**5150. PAINTING.** (3 cr [may be repeated for a max of 6 cr]; prereq 3101 or #)

Painting in the area of specialized interest.

**5151. ADVANCED PAINTING.** (3 cr [may be repeated for a max of 6 cr]; prereq 5150 or #)

Individually supervised projects using both traditional and contemporary painting media and techniques.

- 5173. WORKSHOP IN ADVANCED PAINTING.** (6 cr [may be repeated for a max of 12 cr]; prereq #: offered summer only)  
Creative work in oil or watercolor with criticism by a nationally recognized American artist.
- 5191. INDIVIDUAL STUDY IN PAINTING.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and △)
- 8160. ADVANCED PAINTING.** (3 cr [may be repeated for a max of 9 cr]; prereq 6 cr of 5151 or #)  
Individually supervised independent projects.

## PHOTOGRAPHY

- 1600. PHOTOGRAPHY.** (3 cr; prereq 1002, 1010, 1011 or #)  
Basic concepts and history of photography leading toward fine art expression through laboratory experience.
- 1605. FUNDAMENTALS OF PHOTOGRAPHY.** (3 cr; not for art majors or minors)  
Elementary photographic principles and techniques through a studio art experience.
- 1606. PHOTOGRAPHY.** (3 cr [may be repeated for a max of 6 cr]; prereq 1605 or #; not for art majors or minors)  
Photographic principles and techniques through studio art experiences.
- 3601. CREATIVE PHOTOGRAPHY.** (3 cr; prereq 1600, upper division art major or #)  
A fine arts approach to various photographic media.
- 3602. EXPERIMENTAL COLOR PHOTOGRAPHY.** (3 cr [may be repeated for a max of 6 cr]; prereq 3601 or #)  
Principles and techniques of color photography through fine arts studio experience.
- 5650. ADVANCED PHOTOGRAPHY.** (3 cr [may be repeated for a max of 6 cr]; prereq 3601 or #) Boudreau, Brutger  
Advanced photography in the area of specialized interest.
- 5673. WORKSHOP IN EXPERIMENTAL PHOTOGRAPHY.** (6 cr [may be repeated for a max of 12 cr]; prereq #: offered summer only) Boudreau, Brutger, or guest artist  
An in-depth approach to the use of photographic equipment and media as a means of fine art expression.
- 5691. INDIVIDUAL STUDY IN PHOTOGRAPHY.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and △) Boudreau, Brutger
- 8660. RESEARCH IN PHOTOGRAPHY.** (3 cr [may be repeated for a max of 6 cr]; prereq 5650 or #) Boudreau, Brutger  
Individualized study of a particular photographic technique or medium leading to a fine art expression.

## PRINT PROCESSES

- 1300. PRINT PROCESSES.** (3 cr; prereq 1002, 1010, 1011 or #)  
Basic concepts in traditional and contemporary fine art print techniques.
- 3301. PRINT PROCESSES.** (3 cr; prereq 1300)  
Experiences with a variety of silk-screen, relief, intaglio, and lithographic fine art print techniques.
- 3302. PRINT PROCESSES.** (3 cr; prereq 3301)  
Individual supervised study; creative development of the print processes.
- 5350. PRINT PROCESSES.** (3 cr [may be repeated for a max of 6 cr]; prereq 3301 or #) Meany  
Printmaking in the area of specialized interest.
- 5351. ADVANCED PRINT PROCESSES.** (3 cr [may be repeated for a max of 6 cr]; prereq 5350 or #) Meany  
Advanced printmaking in the area of specialized interest.
- 5373. WORKSHOP IN ADVANCED PRINT PROCESSES.** (6 cr [may be repeated for a max of 12 cr]; prereq 5350 or #; offered summer only) Meany or guest artist  
A concentrated experience in one or more of the disciplines of printmaking; i.e., woodcut (relief), etching (intaglio), lithography, and silk screen (stencil).
- 5391. INDIVIDUAL STUDY IN PRINT PROCESSES.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and △) Meany
- 8360. ADVANCED PRINTMAKING.** (3 cr [may be repeated for a max of 9 cr]; prereq 6 cr of 5350) Meany  
Individually supervised projects in printmaking.

## SCULPTURE

- 1200. SCULPTURE.** (3 cr; prereq 1002, 1010, 1012 or #)  
Basic concepts in volume and space using modeling, casting, and carving processes.
- 3201. SCULPTURE.** (3 cr; prereq 1200)  
Experiences with a variety of sculptural forms and media with an emphasis on creative expression.



## Course Listings

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- 3202. SCULPTURE.** (3 cr; prereq 3201)  
Individual supervised study; creative projects in a sculptural medium of student's special interest.
- 5250. SCULPTURE.** (3 cr [may be repeated for a max of 6 cr]; prereq 3201 or #) Brush  
Sculpture in the area of specialized interest.
- 5251. ADVANCED SCULPTURE.** (3 cr [may be repeated for a max of 6 cr]; prereq 5250 or #) Brush  
Advanced sculpture in the area of specialized interest.
- 5273. WORKSHOP IN ADVANCED SCULPTURE.** (6 cr [may be repeated for a max of 12 cr]; prereq 3201 or #;  
offered summer only) Brush or guest artist  
Development of previously acquired skills in wood, stone, metal, or clay; emphasis on creative discipline.
- 5291. INDIVIDUAL STUDY IN SCULPTURE.** (1-3 cr [may be repeated for a max of 9 cr]; prereq 4 qtrs work and  $\Delta$ )  
Brush
- 8260. ADVANCED SCULPTURE.** (3 cr [may be repeated for a max of 9 cr]; prereq 6 cr of 5251) Brush  
Development of personal expression in sculpture.

### WEAVING

- 1510. WEAVING AND FIBERS.** (3 cr; prereq 1002, 1011, 1012 or #)  
Course in contemporary weaving and fibers.
- 3511. CREATIVE WEAVING AND FIBERS.** (3 cr; prereq 1510 or #)  
Weaving and related techniques in fibers and fabrics.
- 3512. FIBERS.** (3 cr; prereq 3511 or #)  
Individually supervised study in fibers and mixed media of the student's choice.

### GENERAL

- 1001. ART TODAY.** (4 cr)  
Introductory survey of the influence of art in daily life as seen in city planning, the home, other architecture, painting, sculpture, religion, commerce, and industry.
- 1002. INTRODUCTION TO ART.** (4 cr; prereq for all studio art courses)  
A studio course in art for those with little or no creative experience in art, introducing various materials, techniques, and problems. Emphasis will be placed on studio work, class discussions, films, and outside reading.
- 1016. LETTERING.** (3 cr; prereq 1002)  
Development of freehand discipline in lettering and manuscript.
- 1020. SILK SCREEN AS A POSTER MEDIUM.** (3 cr [may be repeated for a max of 6 cr]; prereq 1002 or #)  
Basic silk-screen stencil and printing techniques applied to the design and printing of posters.
- 1905. ART THEORY.** (2 cr; prereq soph art major or #)  
Seminar designed to aid art students to better understand their role in the contemporary visual arts.
- 3050. COMMERCIAL ART.** (3 cr [may be repeated for a max of 9 cr]; prereq 1010, 1011, 3710 or #)  
Studio course in the application of the visual arts to the commercial art field.
- 3800. COMMUNITY INVOLVEMENT THROUGH ART.** (Cr ar [may be repeated for a max of 6 cr]; 1 cr for each 25 hrs of fieldwork)  
For the student interested in gaining actual experience working with public and private social agencies through an art program.
- 3801. APPRENTICE ARTS PROGRAM.** (1-12 cr [may be repeated for a max of 12 cr]; 1 cr for each 30 hrs of fieldwork; prereq #)  
Field study in cooperation with commercial, social, and private agencies.
- 3805. EARLY CHILDHOOD ART.** (1 cr; prereq #)  
A study of preschool art development including studio experiences.
- 3810. ART IN ELEMENTARY EDUCATION.** (5 cr; prereq 1002)  
Instructional problems; growth and development of art expression in children. Studio application of elementary art curriculum.
- 3815. ART IN SECONDARY EDUCATION.** (5 cr; prereq art major or minor)  
Objectives and nature of art programs in the secondary school; content and methods. Studio application of secondary art curriculum.
- 3835. PROBLEMS IN ART EDUCATION.** (Cr ar; prereq art major or minor and #)  
Individual supervised study for especially capable art education students. Practical research in art education techniques.

- 3950. MUSEUM PRACTICE.** (2 cr with  $\Delta$  [may be repeated for a max of 6 cr])  
Organization of art exhibits, installation methods and techniques, cataloging, research, and documentation of art objects.
- 3998. SENIOR EXHIBIT.** (1 cr; prereq major and sr standing)  
Senior art majors, usually in pairs, plan, prepare, and present in Tweed Museum, under the guidance of the museum staff, an exhibition of the best of their cumulative undergraduate artwork.
- 5800. COMMUNITY ART EXPERIENCE.** (Cr ar [may be repeated for a max of 6 cr]; prereq #) Brutger  
For the advanced student interested in field research and in gaining actual experience working with public and private social agencies through an art program.
- 5911. ART SEMINAR.** (2 cr; prereq sr or grad art major or #)  
Current concerns of the visual arts.
- 5990. INDEPENDENT FOREIGN STUDY.** (1-15 cr with  $\Delta$  [not more than a total of 6 cr can be applied to a Graduate School program]; sr or grad standing in art advisable) Hedin, Poynor  
Travel and research in foreign museums, schools, handcraft industries, and art centers. Advanced planning necessary. Credit allowed will depend upon nature and scope of the project.
- 8700. GRADUATE SHOW AND SUPPORTING PAPER.** (3 cr; to be taken in final qtr) Meany  
Graduate exhibition and supporting paper to be credited toward studio requirements.
- 8950. GRADUATE ART SEMINAR.** (1 cr; prereq grad art major or #) Meany  
Selected topics in art theory and criticism.

## ART EDUCATION (ArEd)

(SFA)

- 5840. THE ELEMENTARY STUDENT AND MUSEUMS.** (1 cr [may be repeated for a max of 3 cr]; prereq experienced elementary teacher, upper division elementary student or #; offered summer only)  
A 1-week workshop for elementary teachers and upper division elementary education majors exploring museum resources in the area and means to enrich the museum experience for elementary students. Workshop involves 30 class hours plus assigned papers and projects.
- 5850. CURRICULUM BUILDING.** (3 cr; prereq sr and #) Boyce, A Smith  
Functions of art in education; selection, evaluation, and organization of subject matter to create original teaching units and projects.
- 5860. IMPLEMENTING INSTRUCTIONAL PROGRAM.** (3 cr; prereq sr and #) Boyce, A Smith  
Relation of the instructional program to administrative and supervisory policies; study of facilities and policies for improving the instructional program in art.
- 5870. ADVANCED COURSE IN TEACHING ART.** (3 cr; prereq sr and #) Boyce, A Smith  
Evaluation of current practices; utilization of research findings; introduction of new materials; development of cooperation between classroom teachers and art education specialists.
- 5880. DEVELOPMENT OF ART EDUCATION.** (3 cr; prereq sr and #) Boyce, A Smith  
Effect of various 20th-century art movements on the teaching of art in the public schools.
- 5885. SUPERVISION OF SCHOOL ART.** (3 cr; prereq #) Brutger  
Supervision in art at the various levels of art education. For the student concerned with certification as a supervisor under the state of Minnesota Program TSC 101.
- 8850. TEACHING ASSISTANTS SEMINAR.** (0-1 cr; prereq grad teaching assistant and required of all grad teaching assistants during their first qtr of tchg) Coker  
Orientation to college teaching of fundamental concepts in studio courses.
- 8890.\* PROBLEMS IN ART EDUCATION.** (Cr ar; prereq consent of major adviser) A Smith  
Independent projects under staff guidance; may include advanced studio practice or technical problems requiring experimental or library research.

## ART HISTORY (ArH)

(SFA)

- 1305. TOPICS IN ART HISTORY.** (4 cr, \$1399)  
The genres of painting and special related problems in Western art from 1400 to 1800.
- 1805. ART AND CULTURE.** (4 cr)  
World art seen in its cultural context.
- 5167. ANCIENT ART.** (4 cr, \$5166)  
History and development of Greek, Etruscan, and Roman painting, sculpture, and architecture.

## Course Listings

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- 5206. MEDIEVAL ART.** (4 cr)  
Christian art and architecture from late antiquity to the Renaissance.
- 5316. ITALIAN RENAISSANCE PAINTING.** (3 cr)  
Developments in painting during the 15th and 16th centuries in Italy.
- 5317. ITALIAN RENAISSANCE ARCHITECTURE, SCULPTURE.** (3 cr)  
Developments during the 15th and 16th centuries in Florence, Venice, and Rome.
- 5318. NORTHERN RENAISSANCE ART.** (3 cr)  
Painting of Northern Europe during the 15th and 16th centuries.
- 5406. BAROQUE ART.** (4 cr)  
The art of Europe during the 17th century.
- 5506. 18TH- and 19TH-CENTURY ART.** (4 cr)  
European art from the Rococo period to Postimpressionism.
- 5599. ART OF THE UNITED STATES.** (3 cr)  
American art from the colonial period to the 1960s.
- 5619. ART SINCE WORLD WAR II.** (4 cr, §5618; prereq #)  
Painting and sculpture from abstract expressionism to the present day.
- 5620. MODERN ARCHITECTURE AND SCULPTURE.** (3 cr)  
Characteristics of modern architecture and sculpture.
- 5621. POSTIMPRESSIONISM TO EXPRESSIONISM.** (3 cr)  
Postimpressionism, symbolism, Jugendstil, die Brücke, Fauvism, expressionism, and other movements in the early development of modern art.
- 5622. CUBISM TO ABSTRACT EXPRESSIONISM.** (3 cr)  
Growth of analytical and synthetic cubism, futurism, orphism, the Blaue Reiter, dada, surrealism, suprematism, de Stijl, abstract expressionism, and other movements up to the period around World War II.
- 5706. ORIENTAL ART.** (4 cr)  
Survey of the art of India, China, and Japan with an introduction to the religions and philosophies influencing the art.
- 5805. ART OF AFRICA, OCEANIA, NEW WORLD.** (4 cr) Poynor  
Introduction to the traditional arts of Africa, Oceania, and pre-Columbian America. The functional use of art in the context of the religious, political, and social environment is stressed.
- 5825. TRADITIONAL ART OF SUB-SAHARAN AFRICA.** (4 cr) Poynor  
Survey of art in its traditional context in sub-Saharan Africa.
- 5950. ANCIENT AND CLASSICAL CERAMICS.** (2 cr [must be taken concurrent with ceramic studio]; 1 hr lect plus studio project)  
Survey of the aesthetic and technical development of ceramics.
- 5951. ORIENTAL CERAMICS.** (2 cr [must be taken concurrent with ceramic studio]; 1 hr lect plus studio project)  
Survey of the aesthetic and technical development of ceramics.
- 5952. ISLAMIC AND RENAISSANCE CERAMICS.** (2 cr [must be taken concurrent with ceramic studio]; 1 hr lect plus studio project)  
Survey of the aesthetic and technical development of ceramics.
- 5953. PRE-COLUMBIAN CERAMICS.** (2 cr [must be taken concurrent with ceramic studio]; 1 hr lect plus studio project)  
Survey of the aesthetic and technical development of ceramics.
- 5997. SEMINAR: TOPICS IN ART HISTORY.** (3 cr [may be repeated for a max of 6 cr]; prereq 6 cr of art history at the 5000 level or #)  
Special problems in the history of art. (Topics will change from year to year.)
- 5999. DIRECTED STUDY IN ART HISTORY.** (2-4 cr [may be repeated for a max of 6 cr]; prereq #)  
Independent research in an area of art history pertinent to the interests of the student. Fundamental knowledge of period or subject required.

## ASTRONOMY (Ast)

(CLS)

- 1010. DESCRIPTIVE ASTRONOMY.** (3 cr)  
Sun, moon, planets and their motions, satellites, meteors, and comets.
- 1020. DESCRIPTIVE ASTRONOMY.** (3 cr)  
The present knowledge of the stars, interstellar space, galaxies, the universe, and relativity.



**3050. SPHERICAL AND PRACTICAL ASTRONOMY.** (3 cr)

Determination of time, latitude, and star positions, with applications to navigation and surveying. Work with the 9-inch refractor of the Darling Observatory and the Marshall W. Alworth Planetarium.

**3060. LUNAR ASTRONOMY.** (3 cr)

Present-day knowledge of the moon. Historical background underlying modern theories of the moon. Appraisal of the Lunar Orbiter, Surveyor, and Apollo programs. Visual and photographic observations of the moon with portable instruments and the 9-inch refractor of the Darling Observatory. Study of the earth-moon-sun relationship using the facilities of the Marshall W. Alworth Planetarium.

**BEHAVIORAL SCIENCES (BhSc)****(SM)****5514-5515-5516. MEDICAL SOCIAL PSYCHOLOGY.** (1 cr each; prereq #) Boulger, Brissett, Davis, Gibson

A series of electives on various topics in the general area of medical behavioral science. Typically, these include the social psychology of deviance, alternatives in health care delivery, family dynamics, and others.

**BIOLOGY (Biol)****(CLS)****1001. ELEMENTS OF MICROBIOLOGY.** (4 cr; open to home economics majors, student nurses, dental hygiene students, paranurses, and certain preprofessional students; 2 hrs lect, 4 hrs lab)

Microbes that affect our health.

**1003. BIOLOGY FOR ELEMENTARY EDUCATION.** (4 cr; prereq elementary education major, Chem 1108 or #; 3 hrs lect, 2 hrs lab)

Subject matter background for effective teaching at the elementary school level.

**1012. HUMAN ANATOMY.** (5 cr; primarily for students preparing for nursing, dental hygiene, preprofessional programs, communicative disorders, and physical education; 3 hrs lect, 4 hrs lab)

Gross and microscopic structure of the human body from a functional standpoint utilizing charts, models, and skeletons; cat and sheep organ dissection to demonstrate mammalian anatomy.

**1042. HUMAN PHYSIOLOGY.** (5 cr; primarily for students preparing for nursing, dental hygiene, preprofessional programs, communicative disorders, physical education and school health education; prereq 1 qtr chemistry or #; 3 hrs lect, 4 hrs lab)

Function of the organ systems of the human body. Laboratory work includes graphic recording of muscle contraction, heartbeat, and respiration; experiments in digestion, urinalysis, and cutaneous sensation.

**1061. DENDROLOGY.** (4 cr; 2 hrs lect, 4 hrs lab; offered when feasible)

Forest trees of the United States, their classification, characteristics, and range; lectures, field trips, assigned reading, laboratory.

**1102. BIOLOGY AND MAN.** (5 cr; 4 hrs lect, 2 hrs lab)

Principles of modern biology; origin and nature of life, genetics, eugenics, evolution, population dynamics, ecology, pollution, pesticides, radiation, drugs, and other problems of humans in their environment.

**1109-1110. GENERAL BIOLOGY.** (5 cr each; 3 hrs lect, 4 hrs lab)

An introduction to fundamental concepts of biology stressing evolution, phylogeny, population dynamics, behavior, ecology, genetics, development, anatomy, physiology, and cell and molecular biology.

**3001. THE MICROBIAL WORLD.** (3 cr [no cr for majors or minors in dept], §5403; prereq 5 cr general biology recommended; offered when feasible)

Microbiology for the nonscientist. Microbes that have contributed to recent knowledge in growth, disease, genetics, evolution, and ecology. Taped lectures followed by discussions.

**3009. SCIENCE, BIOLOGY, AND SOCIETY.** (5 cr; will not satisfy requirements for majors or minors in biology; 3 hrs lect, 4 hrs lab)

How biologists and other scientists expand knowledge. The interaction, and influence of science and society on each other.

**3011. BIOLOGY OF WOODY PLANTS.** (2 cr [no cr for majors or minors in dept], §5461; 2 hrs lect-rec, 4 hrs lab; 5 wks)

Structure, function, ecology, and identification of woody plants; significance in modern society. Laboratory will emphasize recognition of native species.

**3153. PRINCIPLES OF GENETICS.** (3 cr; prereq 10 cr in general biology, college algebra or equiv; 3 hrs lect)

Basic principles of Mendelian inheritance and molecular genetics.

**3243. CELLULAR BIOLOGY.** (5 cr; prereq 10 cr in general biology and 5 cr in organic chemistry or #; 3 hrs lect, 6 hrs lab)

Chemical and physical properties of the living cell.

## Course Listings

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- 3773. GENERAL ECOLOGY.** (3 cr; prereq 10 cr in general biology; may be taken without lab 3774)  
Introduction to the principles and theory of environmental biology; functional approach to ecosystems.
- 3774. GENERAL ECOLOGY LABORATORY.** (2 cr; prereq concurrent regis or prior cr in 3773; 3 hrs lab)  
Experience in methods of measuring environmental factors, interpreting data.
- 3900. TOPICS IN BIOLOGY.** (Cr ar [may be repeated for a max of 6 cr]; prereq 10 cr in biology or  $\Delta$ )
- 3960. SEMINAR.** (1 cr [may be repeated for a max of 3 cr]; prereq jr)  
Experience in oral presentation of student-initiated field, laboratory, or library research findings.
- 3980. HONORS.** (1-3 cr [may be repeated for a max of 9 cr])
- 3990. PROBLEMS.** (1-3 cr [may be repeated for a max of 9 cr]; prereq jr and  $\Delta$ )  
Advanced work in special fields.

All of the following biology courses except 5051, 5100, 5444, 5584, and 5779 are "starred" courses that may be used by Graduate School students to satisfy the master's degree 9-credit Plan B requirement of such courses. Students should consult their adviser before registering for these courses.

- 5051. HUMAN GENETICS.** (5 cr, §3153; will not satisfy requirements for major or minor in biology; prereq 5 cr in general biology or #; 4 hrs lect, 2 hrs lab-discussion; offered summer only) Hedman  
Fundamentals of genetics with emphasis on aspects of human genetics encountered in areas of education, psychology, and sociology.
- 5100. BASIC BOTANY AND ZOOLOGY.** (1-9 cr)  
To enable graduate students to make up certain deficiencies in background course work.
- 5155. ORGANIC EVOLUTION.** (3 cr; prereq 10 cr in general biology; 3 hrs lect) Hofslund  
History, opposition, evidence, causes, and conclusions.
- 5181. CHRONOBIOLOGY.** (3 cr; prereq 3243 or #; 3 hrs lect)  
Biological clocks; biological rhythms, cycles, and oscillations in plants and animals. Circadian, lunar, weekly, yearly, and other cycles as applied to health, medicine, behavior, physiology, ecology, and evolution. Theories on the origin of rhythms.
- 5213. PLANT ANATOMY.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab; offered 1977-78 and alt yrs) J Carlson  
Origin, development, and structure of tissue systems of vegetative and reproductive organs of vascular plants.
- 5215. HISTOLOGY.** (5 cr; prereq 10 cr in general biology; 2 hrs lect, 6 hrs lab; offered when feasible)  
Microscopic structure of the vertebrate body.
- 5221. CYTOGENETICS.** (5 cr; prereq 3153 and 3243 or #; 3 hrs lect, 6 hrs lab; offered 1978-79 and alt yrs) Hedman  
Lecture and laboratory experiments dealing with genetic recombination, gene conversion, chromosome structure, gene evolution, and other selected topics in advanced genetics.
- 5235. DEVELOPMENTAL BIOLOGY.** (5 cr; prereq 3153 or 3243 or #; 3 hrs lect, 4 hrs lab) Firling  
Principles of animal and plant development, including: gametogenesis, fertilization, cleavage, gastrulation, organogenesis, embryonic adaptations, metamorphosis, regeneration, and plant growth and differentiation. Laboratory study of invertebrate and vertebrate morphogenesis with emphasis on amphibians, chick, and pig embryogenesis.
- 5253. BIOCHEMICAL GENETICS.** (3 cr; prereq 3153 and 3243; 3 hrs lect; offered 1977-78 and alt yrs) Hedman  
Survey of current concepts concerning gene structure, gene regulation, and gene expression.
- 5403. GENERAL MICROBIOLOGY.** (5 cr; prereq 10 cr in general biology, 10 cr in general chemistry, a course in organic chemistry or #; 3 hrs lect, 6 hrs lab) Fluegel  
Classical and current information on bacteria, viruses, yeasts, and other microorganisms.
- 5411. MORPHOLOGY OF NONVASCULAR PLANTS.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab) J Carlson  
Phylogeny, structure, and life histories of algae, fungi, mosses, and liverworts.
- 5412. MORPHOLOGY OF VASCULAR PLANTS.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab) J Carlson  
Phylogeny, structure, and life histories of ferns, fern allies, and seed plants.
- 5413. GENERAL MYCOLOGY.** (4 cr; prereq organic chemistry or #; 2 hrs lect, 4 hrs lab; offered when feasible) Fluegel  
Life histories, ecology, physiology, morphogenetic studies, control, and practical uses of the fungi.
- 5421. PLANT DIVERSITY.** (5 cr, §5411, §5412; prereq 10 cr in general biology or #; 3 hrs lect, 4 hrs lab; offered summer only) J Carlson  
Laboratory and field studies on the phylogeny, structure, and life histories of algae, fungi, mosses, ferns, fern allies, and seed plants; emphasis on Minnesota species.

- 5443. PLANT PHYSIOLOGY.** (3 cr; prereq 3243 or #...concurrent regis in 5444 by undergrad students; 3 hrs lect; offered 1978-79 and alt yrs) Ahlgren  
Study of plant function with emphasis on the higher plants. Biochemical and physical aspects of plants, their growth, nutrition, metabolism, and relationship to light, water, and other environmental factors. Research paper required of graduate students.
- 5444. PLANT PHYSIOLOGY LABORATORY.** (2 cr; prereq concurrent regis in 5443; 3 hrs lab; offered 1978-79 and alt yrs) Ahlgren  
Experimental basis for interpretation of certain physiological phenomena in plants, research problems, methods, and techniques in plant physiology. Research problem required of graduate students.
- 5461. PLANT TAXONOMY.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab) Monson  
Introduction to taxonomy of vascular plants with emphasis on seed plants; representative families; terminology; literature; use of keys.
- 5463. ADVANCED PLANT TAXONOMY.** (4 cr; prereq 5461 or #; 3 hrs lect, 2 hrs lab; offered 1977-79 and alt yrs) Monson  
Principles of plant-classification; literature of systematic botany with emphasis on bibliographic tools; methods of collection, preservation, and study of vascular plants.
- 5465. FLORA OF MINNESOTA.** (4 cr; prereq 5461 or #; 2 hrs lect, 4 hrs lab; offered summer only) Monson  
Collection, identification, classification, and relationships among flowering plants of the state.
- 5467. AQUATIC FLOWERING PLANTS.** (3 cr; prereq 10 cr in botany or #; 2 hrs lect, 4 hrs lab; offered summer only) Monson  
Higher plants of aquatic and marsh habitats; identification; adaptive morphology; food value to wildlife.
- 5514. PHYSIOLOGY OF DEVELOPMENT.** (5 cr; prereq 3153 or 3243 or 5235 or #; 3 hrs lect, 6 hrs lab) Firling  
Selected topics in the analysis of development: fertilization, morphogenetic movements, induction, cytodifferentiation, gene expression and its control, abnormal development, and aging. Laboratory study of growth and differentiation using surgical, tissue culture, cytological, and biochemical techniques.
- 5515. COMPARATIVE ANATOMY OF INVERTEBRATES.** (5 cr; prereq 10 cr in general biology; 2 hrs lect, 6 hrs lab; offered 1977-78 and alt yrs) Krogstad  
Review of the invertebrate groups with emphasis on morphology and phylogeny.
- 5517. COMPARATIVE ANATOMY OF VERTEBRATES.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab) Odlaug  
Review of vertebrate groups with emphasis on phylogeny.
- 5523. NATURAL HISTORY OF INVERTEBRATES.** (4 cr; prereq 10 cr in general biology; 2 hrs lect, 4 hrs lab and field) Krogstad  
Collection, identification, life histories, and ecological relationships of local invertebrates; emphasis on aquatic species.
- 5524. NATURAL HISTORY OF VERTEBRATES.** (4 cr; prereq 10 cr in general biology or #; 2 hrs lect, 4 hrs lab) Hofslund  
The way of life of vertebrate animals, including the study of their origins, principles of taxonomy, population dynamics, and adaptations to living within their environment.
- 5526. ICHTHYOLOGY.** (4 cr; prereq general ecology or #; 2 hrs lect, 4 hrs lab) H Collins  
Physiologic, taxonomic, ecologic, economic, and behavioral aspects of fishes. Laboratory emphasis on fishes of the Great Lakes region including field-conducted independent study.
- 5527. ORNITHOLOGY.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 5 hrs lab and field) Hofslund  
Laboratory and field identification of birds, their migration and habitats; biological, taxonomic, and economic considerations.
- 5528. MAMMALOLOGY.** (4 cr; prereq general ecology or #; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs) H Collins  
Origin, taxonomy, distribution, physiology, ecology, and behavior of mammals; laboratory and fieldwork in techniques of collecting, preparing specimens, and identification of Minnesota species. Independent field project on mammal ecology.
- 5541. ANIMAL PHYSIOLOGY: INTERNAL COMMUNICATION.** (5 cr, \$5241; prereq 3243 or #; 3 hrs lect, 4 hrs lab) Haller, L Heller, Pozos  
An overview of animal physiology with emphasis on organ system functioning, especially as related to internal communication systems of mammals (neural and endocrine).
- 5542. ANIMAL PHYSIOLOGY: COORDINATED ORGAN SYSTEMS.** (5 cr, \$5241; prereq 5541 or #; 3 hrs lect, 4 hrs lab) Haller, L Heller, Pozos  
In-depth study of the physiology of organ systems (muscle, circulatory, respiratory, renal, and gastrointestinal) and their interrelations.
- 5561. INTRODUCTORY ENTOMOLOGY.** (5 cr; prereq 10 cr in general biology; 2 hrs lect, 6 hrs lab and field) Krogstad  
Structure, life history, ecology, classification, evolution, principles of control, and the significance of insects in our society. Field collections.



## Course Listings

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- 5564. ANIMAL PARASITOLOGY.** (5 cr; prereq 10 cr in general biology; 3 hrs lect, 4 hrs lab) Odlaug  
Common protozoan, worm, and arthropodan parasites of vertebrates; parasites considered from taxonomic, morphological, and physiological viewpoints; methods of transfer from host to host, symptoms of parasitic diseases, economic importance to human beings, and general methods of control; laboratory techniques useful in determining the presence of parasites.
- 5565. HELMINTHOLOGY.** (3 cr; prereq 5564 or #; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs) Odlaug  
Worm parasites of human beings and other animals, their structure, life histories, and biological relationships.
- 5573. FISH BIOLOGY.** (4 cr; prereq 5526; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs) H Collins  
Biology of fish populations. Analysis of problems concerned with commercial and sport fisheries and their management. Laboratory analysis of methods for studying fish growth, food habits, population estimation, and mortality rates. Field trips.
- 5575. ECOLOGY OF BIRDS.** (4 cr; prereq 5527; 2 hrs lect, 4 hrs lab) Hofslund  
Relationships of birds to their environment. Individual and group field and laboratory studies with an introduction to specific ornithological techniques.
- 5583. ANIMAL BEHAVIOR.** (3 cr; prereq 10 cr in general biology; 3 hrs lect) H Collins  
Description of the known behavior of the various vertebrate and invertebrate phyla with emphasis on adaptive significance and the genetics and ontogeny of behavioral patterns. Special attention will be focused on mating, aggressive, nutritive, and nurturing behavior. Behavior related to ecology of animal populations will be presented.
- 5584. ANIMAL BEHAVIOR LABORATORY.** (2 cr; prereq concurrent regis or prior cr in 5583; 4 hrs lab) H Collins  
Laboratory analysis of animal behavior. Student projects will be assigned for demonstration of behavior principles.
- 5561. ECOLOGY OF AQUATIC INVERTEBRATES.** (4 cr; prereq 5561 or 5523; 2 hrs lect, 4 hrs lab and field; offered 1978-79 and alt yrs) Krogstad  
Studies of planktonic and benthic invertebrates in different environments; methods of sampling, determination of population density, detailed taxonomic studies and the preparation of scientific reports appropriate for an environmental impact statement.
- 5771. FRESHWATER ECOLOGY.** (3 cr, \$5773; prereq 10 cr in general biology and general chemistry or #; offered summer only) H Collins  
Analysis of freshwater lake and stream ecosystems. Laboratory and field examination of aquatic communities. Interrelationships of biological, physical, and chemical parameters.
- 5772. ECOLOGY OF MINNESOTA I.** (10 cr; prereq 10 cr in general biology and #; offered summer only, 8:00-5:00 MTWThF [4 wks]) H Collins, Monson  
Biology of the prairie, mixed hardwood forest, boreal forest, and transition zones, including both aquatic and terrestrial ecosystems. A mobile laboratory will be utilized.
- 5773. LIMNOLOGY.** (4 cr; prereq 3773, 3774, organic chemistry or #; 2 hrs lect, 4 hrs lab)  
Biological, chemical, and physical aspects of lakes and streams. Extensive laboratory and field analysis of the ecological relationships between aquatic organisms and their environment.
- 5775. PLANT ECOLOGY.** (5 cr; prereq 3773, 5461, and Math 1110; 3 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs) Kotar  
Plant-environment relationships; local and North American communities; succession; abiotic factors and their measurement.
- 5777. ECOLOGY OF ANIMAL POPULATIONS.** (3 cr; prereq 3773 and #; 3 hrs lect; offered 1977-78 and alt yrs) Krogstad  
Concepts of population structure, growth, competition, predator-prey relationship, life tables, and sampling; review of current literature.
- 5779. ECOLOGY OF ANIMAL POPULATIONS I LABORATORY.** (2 cr; prereq concurrent regis in 5777 or #; 4 hrs lab; offered 1977-78 and alt yrs) Krogstad  
Laboratory, field, and independent studies in animal populations.
- 5801. MICROTECHNIQUE.** (4 cr; prereq 10 cr in general biology and #; 2 hrs lect, 6 hrs lab ar; offered 1977-78 and alt yrs) J Carlson  
Methods of preparing materials for microscopic study; freehand and paraffin procedures; practice in methods of fixation, sectioning, and staining of botanical and zoological materials; principles of photomicrography.
- 5871. WATER POLLUTION BIOLOGY.** (3 cr; prereq 5773 or #; 2 hrs lect, 2 hrs lab)  
A consideration of the responses of aquatic organisms, communities, and ecosystems to pollutants and human use.
- 8900. TOPICS IN BIOLOGY.** (1-5 cr [may be repeated for a max of 8 cr])
- 8960. GRADUATE SEMINAR.** (1 cr [may be repeated for a max of 3 cr]; prereq ∆)  
Reports on recent developments in biology and on research projects in the department.
- 8990. GRADUATE RESEARCH.** (Cr ar; prereq #)

## BIOMEDICAL ANATOMY (Anat)

(SM)

- 8114. HUMAN NEUROANATOMY.** (4 cr; prereq #) Forbes, Severson  
Gross and microscopic structure of the central nervous system, with correlation of structure, function and clinical relevance. Includes consideration of special senses.

## BUSINESS ADMINISTRATION (BA)

(SBE)

- 3030. BUSINESS ENVIRONMENT.** (4 cr; offered when feasible)  
Business as a part of a larger system—economic, political, social. Special emphasis on the external environment—economics, culture, government, technology, international relations, labor—within which business operates. Social responsibility.
- 3104. THE FUNCTIONS OF LAW.** (4 cr)  
Investigation of the formal legal processes, the laws of contracts, and the laws of labor to obtain an understanding of the functions of law in society and business.
- 3105. BUSINESS LAW.** (4 cr)  
Principles of the law of business organizations, property contracts and sales, and negotiable instruments within the Uniform Commercial Code.
- 3204. QUANTITATIVE METHODS I.** (5 cr; prereq prebusiness)  
An introduction to quantitative analysis for management. Topics include decision theory, linear programming and sensitivity analysis, Markov processes, queuing theory, and dynamic programming.
- 3205. QUANTITATIVE METHODS II.** (4 cr; prereq 3204; offered when feasible)  
Queuing theory, Markov chains, integer and nonlinear programming, branch and bound techniques.
- 3211. MANAGEMENT INFORMATION SYSTEMS.** (4 cr; prereq prebusiness)  
Conceptual foundations, structure, development, and implementation of information systems for social organizations, with emphasis on computer-based systems and their behavioral and societal implications for management.
- 3241. SYSTEMS ANALYSIS I.** (3 cr; prereq 3204)  
An introduction to management science, with emphasis on computer-based methodologies. Topics include Monte Carlo methods, discrete event digital simulation, systems dynamics, and the management implications of the systems approach to social decision-making processes.
- 3242. SYSTEMS ANALYSIS II.** (3 cr; prereq 3241)  
Current topics in the application of management science methodologies to social decision-making processes.
- 3301. PRODUCTION MANAGEMENT.** (3 cr; prereq prebusiness or #)  
Techniques, managerial problems, and decision-making processes in planning and controlling the production activity. Research and development, standards, physical facilities, work measurement, materials control, quality control, production planning.
- 3304. FUNDAMENTALS OF MANAGEMENT.** (3 cr; prereq prebusiness or #)  
The principal functional areas of management: planning, organizing, staffing, directing, and controlling. Examines attributes of good organization; establishment of goals, policies, and procedures; control systems and techniques; providing necessary factors and relationships to achieve organizational objectives.
- 3330. ORGANIZATION THEORY AND ANALYSIS.** (4 cr; prereq business core or #; offered when feasible)  
Survey of organization theories and the application of these theories to organizational structuring, coordination, control, job design, organizational decision making, leadership, and organizational development.
- 3355. SMALL BUSINESS MANAGEMENT.** (3 cr, §3351; prereq 3304, 3601, 3701 or #; offered when feasible)  
An integrating course focusing on the problems, concerns, and opportunities associated with the ownership and/or management of a small firm. Students will be required to present detailed written and oral planning and analysis reports for a proposed small business.
- 3362. BUSINESS POLICY.** (4 cr, §3361; prereq sr, 3301, 3304, 3601, 3701, 3804 or #)  
Integration of the subject matter of required courses in business administration, economics, and the behavioral sciences, through study of the problems of top management organization, administrative techniques, and policy formulation. Cases are used as the basis for class discussion. Written reports and oral presentations are required.
- 3374. INTERNSHIP IN MANAGEMENT.** (5 cr; open only to sr business administration majors; prereq business core, except 3361, and Δ)  
The student will work full time for 1 quarter or 2 summer terms in an approved program within a public agency, private business, or other organization. Written and oral reports of the student's activities will be required.

## Course Listings

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- 3601. CORPORATION FINANCE.** (3 cr; prereq prebusiness or #)  
Principles governing the planning, raising, and control of short- and long-term funds for business enterprise. Cash flow, valuation, capital structures, investment banking, dividend policy, mergers, and reorganizations.
- 3644. INVESTMENT FUNDAMENTALS.** (4 cr; prereq 3601 or #)  
A comprehensive introduction to the nature, problems, and process of evaluating particular securities and portfolio construction and administration. A survey of basic principles of security analysis, analytical techniques and investment policy for the individual and institutional investors.
- 3647. FINANCIAL MARKETS AND INSTITUTIONS.** (4 cr; prereq 3601 or #)  
Analysis of the structure and functions of the money and capital markets, the savings-investment process and financial institutions. Role of the Federal Reserve and Treasury in financial market development, supply and demand for loanable funds, and interrelationship of financial markets; the level and structure of interest rates.
- 3648. INTERNATIONAL FINANCE.** (4 cr; prereq prebusiness or #)  
The problems and techniques of financing international trade; asset choice and institutional operations in international finance; the role and operations of the foreign exchange markets and exchange control.
- 3701. PRINCIPLES OF MARKETING.** (3 cr; prereq prebusiness or #)  
Social, economic, legal, and other environmental aspects of marketing. Special emphasis on the changing environment and the resulting impact on marketing strategy and marketing policies including product development, pricing, marketing channels, and promotion.
- 3724. INTERNATIONAL BUSINESS.** (4 cr; prereq prebusiness or #)  
Broad study of the major forms of international business; the impact of international economic and nationalistic government policies on the formation of international trade patterns and marketing decisions, comparative managerial marketing functions, trade procedures, and international transfer of payments.
- 3741. SALES MANAGEMENT.** (4 cr; prereq 3701 or #)  
Determination of sales policies, sales organization, the selection, training, and compensation of salesmen, the control of sales performance and sales budgets in industrial, wholesale, and business service organizations. Behavioral approaches to selling and sales organizations.
- 3802. ORGANIZATION BEHAVIOR.** (3 cr; prereq 3304)  
Involves the examination of models demonstrating how individual, group, and organization characteristics influence employee affective, behavioral, and motivational responses within the organization context by focusing on such topics as job design, leadership, participation, group influences, organizational design, and goal setting.
- 3804. PERSONNEL ADMINISTRATION.** (3 cr; prereq prebusiness or #)  
Personnel management and labor relations in development and utilization of effective work teams. Overview of policy and practice in major human resources management functions of staffing, training, communications, motivation, compensation, and morale maintenance.
- 3807. WAGE AND EMPLOYMENT ANALYSIS.** (4 cr; prereq prebusiness or #)  
An analysis of the interrelationships between labor productivity, wages, prices, and levels of employment. Classical and current thought will be contrasted against the backdrop of government legislative and judicial policies.
- 3821. HUMAN RELATIONS IN ADMINISTRATION.** (4 cr; prereq prebusiness or #)  
Application of basic human relations techniques to managerial situations in decision making and superior-subordinate relationships. Consideration of human factors of listening, motivation, frustration, attitudes, delegation, morale, boredom, group discussion techniques, and performance appraisal through role playing and case study.
- 3842. LABOR RELATIONS.** (4 cr; prereq 3804 or #)  
Contractual relationships between employers and/or employer associations and unions. Relevant policies of employers, unions, and the public; background of the labor movement with emphasis on development of current labor law; current practices in labor relations; and significant trends.
- 3901. FUNDAMENTALS OF MANAGEMENT RESEARCH.** (2 cr; prereq 3304 and 3804)  
Emphasis on theory construction and methods of empirical research in the area of organization behavior and human resources management. Oriented toward increasing the student's ability to understand and apply theory and empirical research in the management area.
- 3970. INDEPENDENT STUDY.** (1-3 cr; prereq  $\Delta$ )  
For students wishing to do special work in a business administration area that extends beyond, or in greater depth than, regular course offerings.
- 3975. MANAGEMENT FIELD STUDIES.** (1-3 cr [may be repeated for a max of 6 cr]; open to srs in the School of Business and Economics and #)  
An opportunity for student teams to provide management assistance and counseling to public agencies, private businesses, or other organizations.



- 3980. SEMINAR: TOPICS IN BUSINESS.** (4 cr [may be repeated for a max of 12 cr]; open only to srs in the Dept of Business Administration; prereq business core; offered when feasible)  
A seminar on contemporary management problems within the functional areas of business administration.
- 5101. LEGAL ENVIRONMENT OF BUSINESS.** (3 cr, §3030; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
Legal institutions and processes involved in the development of public policies affecting business. Analysis of the relation of recent legal developments of corporate social responsibility.
- 5120. LEGAL ENVIRONMENT OF MULTINATIONAL BUSINESS.** (4 cr; prereq 3724 or #; offered when feasible)  
Investigation of the legal environment of business in different nations and how the legal systems of nations or groups of nations aid or restrict trade among nations.
- 5201. QUANTITATIVE ANALYSIS.** (4 cr, §3204; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
A study of deterministic and probabilistic modeling techniques and their application to managerial decision making and control systems. Topics covered are decision analysis, mathematical programming, forecasting, and simulation. Emphasis is placed on problem formulation and understanding the necessity and limitations of the assumptions of each model.
- 5301. ADMINISTRATIVE FUNCTIONS.** (3 cr, §3304; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
A functional approach to the management process utilizing major contributions of the behavioral, classical, and management science schools to develop a framework for analyzing and executing the administrative functions.
- 5364. MANAGEMENT ISSUES AND CONCEPTS.** (3 cr; prereq sr, 3304 and #)  
Past and present contributions to the development of management thought and practice.
- 5601. FUNDAMENTALS OF FINANCE.** (3 cr, §3601; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
A comprehensive introduction to the main concepts of financial analysis for business organizations. A survey of financial instruments and institutions available to the financial manager, and financial decision models related to the acquisition, allocation, and control of funds and the related activities of performance measurement.
- 5701. MARKETING.** (3 cr, §3701; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
A comprehensive introduction to the field of marketing. Emphasis on the changing economic, legal, and social environment affecting marketing management. Introduction to marketing decision processes, marketing policy determination, and marketing strategies.
- 5751. ADVERTISING MANAGEMENT.** (3 cr, §3743; prereq 3701 or 5701 or #)  
Advertising planning and policy, demand analysis, media selection, channel support, creative policy, advertising and public relations agency relationships.
- 5761. MARKETING STRATEGY.** (3 cr; prereq 3701 or 5701 or #)  
Coordination and integration of the functions of marketing into an operational management strategy in the marketing system.
- 5801. ORGANIZATIONAL BEHAVIOR AND ANALYSIS.** (3 cr, §3330; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
Overview of basic organizational and work theories for analysis, prediction, and control of human behavior. Emphasis on application of theory to policy formulation and impact of practices on employer-employee relations, employee motivation, development and appraisal. Effect of leadership styles on organizational performance and change.
- 5841. COLLECTIVE BARGAINING: PUBLIC AND PRIVATE SECTOR.** (3 cr; prereq 3804 or 5801 or #)  
Systems approach to examination of collective bargaining process in terms of its functions, practices, and impacts. Contract administration and arbitration procedures. Impact of conflict and behavioral models on strategy and tactics.
- 5851. TRAINING AND ORGANIZATION DEVELOPMENT.** (3 cr; prereq 3804 or 5801 or equiv or #)  
Design, implementation, and evaluation of training systems. Study of learning theory, needs analysis, behavioral objectives, and training techniques. Philosophy, methods, and research support for organization development programs.
- 8011. INTERNATIONAL BUSINESS ENVIRONMENT.** (3 cr; prereq 5301 and Econ 5401 or #)  
Theoretical and managerial concepts of international trade, multinational business organizations, and transnational business policies and practices.
- 8111. BUSINESS, GOVERNMENT AND SOCIETY.** (3 cr; prereq 5101 or equiv or #)  
Examination of advanced legal problems bearing upon management's operating policies and the legal relationships among business, consumers, government, labor, and agriculture. Problems of business ethics.

## Course Listings

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- 8211. MANAGEMENT SCIENCE.** (3 cr; prereq 5201 or equiv or #)  
Analysis of the integration and computer-augmented application of quantitative modeling techniques in a dynamic environment. Individual and group projects are used to provide the student with an opportunity to implement decision modeling techniques.
- 8311. POLICY FORMULATION AND IMPLEMENTATION.** (3 cr; prereq completion of required MBA courses or #)  
Development of a top management framework for identifying opportunities, defining problems, developing and analyzing alternative policies and action strategies, and making recommendations. Integration of functional (marketing, production, finance, accounting) problems within dynamic organizational and external environments.
- 8611. FINANCIAL MANAGEMENT.** (3 cr; prereq 5601 or equiv or #)  
Corporate financial policy. Application of financial theory and decision-making tools.
- 8711. MARKETING MANAGEMENT.** (3 cr; prereq 5701 or equiv or #)  
Planning, directing, and controlling the marketing organization. Marketing management concepts.
- 8811. MANAGEMENT OF HUMAN RESOURCES.** (3 cr; prereq 5301 or 5801 or equiv or #)  
Human resource and personnel decisions involving selection, placement, career planning, training and development, compensation, evaluation and control of human performance. Human-choice decision making within the framework of contemporary federal-state employment policy and resolution of industrial conflict.
- 8901. RESEARCH METHODOLOGY.** (3 cr; prereq 18 cr of required MBA courses or #)  
Nature of research in management. Objectives and research design. Research tools and their application. Data collection and interpretation. Research project.
- 8911. MANAGEMENT RESEARCH.** (1-6 cr [may be repeated for a max of 6 cr]; prereq 8901; students must complete 6 cr for the MBA degree)  
A research project required for the completion of the M.B.A. degree. The project must be approved by the student's graduate adviser and research committee.

## BUSINESS, OFFICE AND ECONOMIC EDUCATION (BOEE)

(SBE)

- 1040. TYPEWRITING TECHNIQUES.** (2 cr)  
Development of basic techniques and manipulative skills for efficient machine operation. Introduction to applications through centering, tabulating, and structuring typewritten material into letters, tables, manuscripts, and business forms.
- 1041. PRODUCTION TYPEWRITING I.** (2 cr; prereq 1040)  
Emphasis on the development of accuracy and speed in straight copy and production activities. Application of skill to typing advanced letter forms, tabulation problems, office forms, and bound manuscripts.
- 1042. PRODUCTION TYPEWRITING II.** (2 cr; prereq 1041)  
Emphasis on the development of accuracy and speed in straight copy, composition at the machine and production activities. Application of skill to typing special business forms, bound manuscripts with footnotes, and complex tabulated materials.
- 1043. PRODUCTION TYPEWRITING III.** (2 cr; prereq 1042)  
Emphasis on the development of accuracy and speed; refinement of typewriting skills. Preparation and typing of legal, medical, technical, and financial reports and materials for duplicating.
- 1046. BEGINNING SHORTHAND.** (3 cr)  
The presentation and application of the theory of Gregg shorthand and introduction to new matter dictation.
- 1047. INTERMEDIATE SHORTHAND.** (3 cr; prereq 1046)  
Emphasis on the development of a higher dictation speed and typing of mailable transcripts.
- 1048. ADVANCED SHORTHAND.** (3 cr; prereq 1047)  
Emphasis on rapid and accurate transcription into mailable copy from shorthand notes.
- 1056. BEGINNING FORKNER SHORTHAND.** (3 cr)  
Teaches the student to read and write Forkner shorthand rapidly and accurately. Will prepare the student to take new matter dictation with Forkner shorthand and transcribe from the Forkner shorthand notes.
- 1057. INTERMEDIATE FORKNER SHORTHAND.** (3 cr; prereq 1056)  
Emphasis will be on developing the ability to take new matter dictation at higher speeds and the ability to prepare mailable typewritten transcripts from Forkner shorthand notes.
- 1058. ADVANCED FORKNER SHORTHAND.** (3 cr; prereq 1057)  
Emphasis is on the rapid and accurate transcription of Forkner shorthand notes taken from new matter dictation into mailable transcript.

- 1200. GRAPHICS.** (2 cr)  
Use of graphic techniques as a form of efficient message transfer in the expression and communication of business and economic data and relationships. Analysis, interpretation, and techniques of reproduction of graphic materials will be emphasized.
- 1201. CALCULATING EQUIPMENT.** (1 cr; 2 hrs lect-lab)  
Application of calculators to the solution of mathematical problems encountered in the business world. Operation of adding machines, printing and electronic calculators.
- 1202. REPROGRAPHICS.** (1 cr; prereq 1041 and 1200 or #)  
Functions and techniques of business data reproduction.
- 1203. RECORDS MANAGEMENT.** (2 cr)  
Modern techniques of data classification, storage, and retrieval.
- 1204. INTRODUCTION TO DATA PROCESSING.** (3 cr)  
Basic elements of computer hardware, software, and programming. Included is the history and development of business data processing. Students will write and execute a number of programs.
- 3004. BUSINESS AND ECONOMICS EDUCATION.** (2 cr; open only to business, office and economic education majors; prereq #; offered alt yrs)  
Introductory survey of the fields of basic business, economic, office, and distributive education at different educational levels; guidance, professional development, legislation, trends, and similar topics applicable to all areas of business education.
- 3005. OFFICE TRANSCRIPTION.** (4 cr; prereq 1042, 1048, Ind 3601 or equiv)  
An integration of previously acquired skills in shorthand, typewriting, and reprographics. Emphasis will be placed on transcription, including machine transcription, and vocabulary development.
- 3006. OFFICE AND SECRETARIAL PROCEDURES.** (4 cr; prereq 1042, 1048, and Ind 3601 or equiv)  
The integration of secretarial skills with human relationships. Correlates skills, personal qualities, and ethics. Training in editing and revising correspondence, communications, and use of reference materials. Covers techniques of office administration.
- 3007. OFFICE MANAGEMENT.** (4 cr; prereq 1041 or #)  
Office problems from the point of view of the administrator. Impact of automation on the office, processing information; controlling expenses, forms design; and control of office output.
- 3104. BUSINESS COMMUNICATIONS.** (3 cr; prereq Engl 1106, 1107 or #)  
Examines the concept of communication, the language of business, and concentrates on developing the skills of communicating through letters, memorandums, reports, and other means.
- 3263. METHODS OF TEACHING TYPEWRITING.** (1 cr; prereq 1043 and #)  
Techniques and problems of teaching typewriting and office practice.
- 3265. METHODS OF TEACHING BOOKKEEPING.** (1 cr; prereq Acct 1513 and #)  
Techniques and problems of teaching bookkeeping.
- 3267. METHODS OF TEACHING SHORTHAND.** (1 cr; prereq 1048 and #)  
Techniques and problems of teaching shorthand and transcription.
- 5032. MATERIALS, METHODS IN ECONOMIC EDUCATION.** (1-4 cr; prereq  $\Delta$ ; offered when feasible)  
Analysis, evaluation, and sources of materials; planning and development of materials for elementary and secondary classroom.
- 5101. WORD PROCESSING TECHNIQUES.** (3 cr; prereq 1043 or 1048 or 1058 and 1203)  
Familiarization with the word processing concepts and operational knowledge of automatic word processing equipment.
- 5106. ORGANIZATION, ADMINISTRATION OF VOCATIONAL PROGRAMS.** (3 cr; prereq #; offered alt yrs)  
A study of the methods and devices used in supervising and organizing programs in vocational education. Principles, practices; local, state, federal regulations; reporting and evaluation; club programs; curriculum; affiliations.
- 5107. MATERIALS, METHODS OF COOPERATIVE OFFICE EDUCATION.** (3 cr; prereq #; offered alt yrs)  
This course is designed to familiarize participants with the most recent methods and techniques in teaching cooperative office education. Emphasis will be placed on the utilization of recent resources, activities and supplementary materials.
- 5111. MODEL OFFICE SUPERVISION.** (3 cr; prereq #; offered alt yrs)  
Designed for teachers and prospective teachers who are interested in developing a model office program. Emphasis will be placed on procedures for establishing, equipping, and teaching.
- 5261. TEACHING SECRETARIAL SUBJECTS.** (3 cr; prereq 3263 and 3267 or #; offered when feasible)  
Recent research and trends in teaching typewriting, shorthand, and office practice.
- 5262. TEACHING DATA PROCESSING SUBJECTS.** (3 cr; prereq 3265 or #; offered when feasible)  
Advanced course in methods of teaching bookkeeping and related data processing courses at the secondary and collegiate levels, guidance information, recent research and trends.



- 5263. TEACHING BASIC BUSINESS SUBJECTS.** (3 cr; prereq #; offered when feasible)  
Recent trends and developments in teaching junior business training, economic geography, marketing, business law, consumer education, and bookkeeping.
- 5800. SPECIAL TOPICS.** (1-6 cr [may be repeated for a max of 12 cr; not more than a total of 6 cr can be applied to a Graduate School program]; prereq  $\Delta$ )  
Study of special topics in business, office, and economic education. Specific course topic will be announced in *Class Schedule*.
- 5900. OFFICE OCCUPATIONS INTERNSHIP.** (1-16 cr [may be repeated for a max of 16 cr; no more than a total of 5 cr can be applied to a master's degree program]; prereq #)  
A cooperative occupational program where the participant will receive on-the-job experience in offices in business and/or industry, with seminars on applications of experience to teaching and guidance of high school and post-high school students.
- 5970. INDEPENDENT STUDY.** (1-6 cr [may be repeated for a max of 12 cr; not more than a total of 6 cr can be applied to a Graduate School program]; prereq  $\Delta$ )  
For students wishing to do special work in a business education area that extends beyond, or in greater depth than, regular course offerings.

## CHEMISTRY (Chem)

## (CLS)

- 1101. ASPECTS OF CHEMISTRY.** (5 cr, §1103, §1108, §1110, §1130)  
A nonmathematical approach to selected topics in general, organic, and biological chemistry. Intended to be a true liberal arts offering and an independent unit in contrast to Chem 1103, 1110, or 1130. Can be used as a minimum survey in chemistry for students requiring an elementary course in physiology.
- 1103-1104. GENERAL CHEMISTRY.** (5 cr each, §1110-1111, §1130-1131; primarily for students who will terminate study of chemistry with no more than 15 cr; 5 hrs lect, rec and lab prep, 2 hrs lab)  
General principles; atomic structure, solutions, ionization; properties and uses of metals, nonmetals, acids, bases, and salts.
- 1108. CHEMISTRY FOR ELEMENTARY EDUCATION.** (4 cr, §1103, §1110, §1130; prereq elementary education major; 3 hrs lect, 2 hrs lab)  
Subject matter background for effective teaching at the elementary school level.
- 1110-1111-1112. GENERAL CHEMISTRY.** (5 cr each, §1103-1104 [exceptions permitted only by deptl action], §1130-1131-1132; primarily for students who will take more than 15 cr in chemistry; prereq high school chemistry and high school algebra or  $\Delta$ ; 3 hrs lect, 1 hr rec, 4 hrs lab)  
Fundamental principles exemplified by study of elements, compounds, and their reactions.
- 1130-1131-1132. GENERAL CHEMISTRY.** (5 cr each, §1103-1104 [exceptions permitted only by deptl action], §1110-1111-1112; primarily for chemistry majors and others selected for aptitude and interest; prereq high school chemistry and high school algebra or  $\Delta$ ; 3 hrs lect, 1 hr rec, 4 hrs lab)  
Fundamental principles exemplified by study of elements, compounds and their reactions.
- 1150. INDEPENDENT STUDY.** (1-2 cr [may be repeated for max of 4 cr]; prereq  $\Delta$ )  
For students wishing to do special work in areas useful to individual programs and objectives when such are not available in regular course offerings.
- 1500. ORGANIC CHEMISTRY.** (5 cr, §3512 or §3530; prereq 1104, 1111 or 1131; 4 hrs lect and rec, 4 hrs lab)  
Nature and reactions of organic compounds with examples of such compounds occurring in plants, animals, and foods or used for medical and household purposes.
- 3106. CHEMISTRY IN MODERN LIFE.** (4 cr, §1101, §1103, §1110, §1130, or §1108; primarily for majors in the humanities and social sciences; 3106 will not satisfy requirements for a major or minor in chemistry)  
Consideration of chemistry from the standpoint of its effect and influence on contemporary problems. No science background is assumed.
- 3150. TOPICS IN CHEMISTRY.** (1 cr [may be repeated for a max of 2 cr]; prereq sr standing and  $\Delta$ )  
Integration of subject matter in the 4-year curriculum.
- 3180. UNDERGRADUATE SEMINAR.** (1 cr; 1 hr per wk for 4 qtrs)  
Practice in the preparation and oral presentation of reports on articles from the literature or on senior research.
- 3192. CHEMISTRY RESEARCH.** (1-3 cr [may be repeated for max of 9 cr]; prereq  $\Delta$ )  
Designed to provide experience in a selected area of research in chemistry.
- 3210. INTRODUCTORY QUANTITATIVE ANALYSIS.** (5 cr; prereq 1112 or 1132; 3 hrs lect, 6 hrs lab)  
Theory and practice in analytical techniques; introduces gravimetric, volumetric, and spectrophotometric methods.

- 3310. BIOCHEMISTRY.** (5 cr [may be taken for 4 cr by attending lect only], §5332-5333; prereq 3513 or 3532; 4 hrs lect, 3 hrs lab)  
Introduction to biochemistry with emphasis on enzyme catalysis, cellular energetics, major metabolic processes, and metabolic regulation.
- 3512-3513. ORGANIC CHEMISTRY.** (5 cr each, §1500, or §3530; prereq 1112 or 1132 or #; 4 hrs lect, 3 hrs lab)  
The chemistry of carbon compounds with emphasis on those of biological importance.
- 3530-3531-3532. ORGANIC CHEMISTRY.** (5/4/4 cr, §1500, §3512, §3520-3521-3522; prereq 1112 or 1132 or #; 3 hrs lect, 6 hrs lab for 3530...3 hrs lect, 3 hrs lab for 3531-3532)  
Compounds of carbon.
- 5120. ADVANCED CHEMISTRY LABORATORY.** (1 cr; prereq 3532; 3 hrs lab)  
Basic measurements in chemical systems.
- 5121-5122-5123. ADVANCED CHEMISTRY LABORATORY.** (2 cr each; prereq 3210, and concurrent regis in 5420 and 5620 for 5121, and 5621 for 5122; 6 hrs lab each)  
Integrated laboratory program in chemistry including thermodynamics, spectroscopy, kinetics and synthesis.
- 5124. ADVANCED CHEMISTRY LABORATORY.** (2 cr [may be repeated for a max of 4 cr]; prereq 5123; 6 hrs lab)  
Student-designed projects in thermodynamics, spectroscopy, kinetics and synthesis.
- 5220. QUANTITATIVE ANALYSIS.** (4 cr; prereq 5230; 2 hrs lect, 6 hrs lab)  
Theory and practice in classical and instrumental methods of chemical analysis, including methods of separation.
- 5230. QUANTITATIVE ANALYSIS.** (3 cr)  
Theory of classical and instrumental methods of chemical analysis.
- 5332-5333. BIOCHEMISTRY.** (5 cr each [may be taken for 4 cr each by attending lect only], §3310; prereq 3513 or 3532 and Math 1296...physical chemistry recommended; 4 hrs lect, 3 hrs lab)  
Significance of the structure and reactivities of biochemically important compounds and their interactions in living systems with emphasis on bioenergetics, enzyme activities, and control of metabolic processes. Laboratory in various biochemical techniques.
- 5335. BIOCHEMICAL TECHNIQUES.** (1-3 cr [the three areas will be covered separately with 1 cr for each...the student may take any combination of a, b, and c]; prereq 5333 or #; 3 hrs lab per cr)  
Laboratory in biochemical techniques with emphasis on (a) chromatography and electrophoresis, (b) radioisotopes, and (c) enzymes and metabolism.
- 5399. RESEARCH TOPICS FOR HIGH SCHOOL CHEMISTRY TEACHERS.** (3-6 cr [may be repeated for a max of 12 cr]; prereq admission to MA in education or MEd program and  $\Delta$ )  
Experimental work and philosophy associated with a selected research topic in chemistry.
- 5420-5421. INORGANIC CHEMISTRY.** (3 cr each; prereq 5610 or 5620; 3 hrs lect)  
5420: Atomic structure and properties of elements based thereon. Chemical bonding. Chemistry of coordination compounds. 5421: Mechanisms of selected inorganic reactions; survey of the chemistry of the representative elements. Organometallic chemistry. Bioinorganic chemistry.
- 5610-5611. PHYSICAL CHEMISTRY.** (3/4 cr [may be taken for 3/3 cr by omitting lab work]; prereq 3513 or #, Math 1296; 3 hrs lect for 5610, 5611, 3 hrs lab for 5611)  
Properties of gases, liquids, and solutions; thermodynamics and equilibria; electrochemistry; chemical kinetics.
- 5620-5621-5622. PHYSICAL CHEMISTRY.** (3 cr each; prereq 2 yrs chemistry, incl 3210 or #, Phys 1109, Math 3298)  
Quantitative treatment of physical principles and theories underlying chemistry.
- 5710. STRUCTURAL CHEMISTRY.** (5 cr; prereq grad standing or #)  
Application and instrumentation in absorption spectroscopy: techniques for structure elucidation.
- 5720. THEORETICAL CHEMISTRY.** (4 cr; prereq grad standing or #)  
Introduction to theoretical aspects of atomic and molecular structure, chemical bonding, symmetry, and spectroscopic methods.
- 5730. SYNTHESIS.** (4 cr; prereq grad standing or #)  
Study of the philosophy, nature, and concepts of chemical synthesis.
- 5740. THERMODYNAMICS.** (4 cr; prereq grad standing or #)  
Basic principles of classical and statistical thermodynamics with applications to the various areas of chemistry.
- 5750. KINETICS AND MECHANISMS.** (4 cr; prereq grad standing or #)  
Reaction rate theory. relationship between kinetics and thermodynamics, catalysis, methods and theory of establishing mechanisms.

## Course Listings

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- 8180. SEMINAR.** (1 cr [may be repeated for cr])  
Practice in the preparation and oral presentation of reports on articles from the literature or on graduate research.
- 8199. RESEARCH IN CHEMISTRY.** (Cr ar)
- 8240. ELECTROCHEMICAL METHODS.** (4 cr)  
Treatment of electrochemical methods including potentiometry, voltammetry, and coulometry.
- 8241. METHODS OF SEPARATION.** (4 cr)  
Theory and applications of various separation techniques, including solvent extraction, chromatography, and ion exchange.
- 8242. ANALYTICAL TECHNIQUES, LABORATORY.** (1-3 cr [may be repeated for a max of 3 cr])  
Quantitative laboratory work in instrumental and separation techniques.
- 8260. GENERAL SURVEY IN ANALYTICAL CHEMISTRY.** (1 cr; by proficiency exam only)  
Independent reading that is prerequisite to candidacy for the M.S. degree in analytical chemistry.
- 8340. ADVANCED BIOCHEMISTRY.** (4 cr; prereq grad standing or #, 5333 or equiv and 5622 or 5611 or equiv)  
Current topics in biochemistry.
- 8440. THEORETICAL INORGANIC CHEMISTRY.** (4 cr; prereq 5720)  
Discussion of structure, reactions and bonding in inorganic compounds in terms of valence bond, molecular orbital and ligand field theories. Theory and application of absorption spectroscopy.
- 8441. PHYSICAL METHODS IN INORGANIC CHEMISTRY.** (4 cr; prereq 8440)  
Theory of physical methods with application to inorganic compounds.
- 8460. GENERAL SURVEY IN INORGANIC CHEMISTRY.** (1 cr; by proficiency exam only)  
Independent reading that is prerequisite to candidacy for the M.S. degree in inorganic chemistry.
- 8540. ORGANIC REACTION MECHANISMS.** (4 cr; prereq 5750)  
Specific application to organic reactions of material covered in 5750.
- 8541. ORGANIC SYNTHESIS.** (4 cr; prereq 5730)  
Selected total synthesis and synthetic methods in organic chemistry.
- 8560. GENERAL SURVEY IN ORGANIC CHEMISTRY.** (1 cr; by proficiency exam only)  
Independent reading that is prerequisite to candidacy for the M.S. degree in organic chemistry.
- 8640. TRANSPORT PROCESSES.** (4 cr; prereq grad standing or #)  
Theory and applications with emphasis on transport processes in liquids.
- 8641. QUANTUM CHEMISTRY.** (4 cr; prereq 5720, grad standing or #)  
Applications of quantum theory in chemistry.
- 8660. GENERAL SURVEY IN PHYSICAL CHEMISTRY.** (1 cr; by proficiency exam only)  
Independent reading that is prerequisite to candidacy for the M.S. degree in physical chemistry.
- 8740. SELECTED TOPICS IN CHEMISTRY.** (Cr ar; prereq grad standing or #)

## CHEMISTRY FOR HIGH SCHOOL TEACHERS

- Sci 5350-5351. CHEMISTRY FOR HIGH SCHOOL TEACHERS III-IV.** (3 cr each; prereq  $\Delta$ ; 4 hrs lect, 3 hrs lab; offered summer only)  
Complete participation in lecture-quiz of Chem 3512-3513 is required. A library research paper and special problems will be assigned. Experiments of particular importance to high school chemistry will be included in the laboratory assignments.

## COACHING CERTIFICATION (CC)

(CE)

- 3116. APPLIED SPORTS SCIENCE.** (4 cr, §PE 3116; 3 hrs lect, 4½ hrs lab)  
Study of prevention and care of injuries with special emphasis on sport training programs. Reconditioning and preconditioning regimens.
- 3160. PSYCHOLOGICAL ASPECTS OF COACHING.** (2 cr; prereq #)  
Introduction to field of coaching with its educational value coupled with the study of psychological and sociological dimensions of high-level performance.
- 3161. ADMINISTRATIVE ASPECTS OF COACHING.** (2 cr; prereq #)  
A look at state and federal governing organizations, budgeting, scheduling, insurance, contest administration, and public relations procedures.
- 3171. COACHING BASKETBALL.** (2 cr, §PE 3171)  
Fundamentals, styles of offense and defense, training suggestions.



- 3172. COACHING VOLLEYBALL.** (2 cr; §PE 3172)  
Coaching of volleyball offenses and defenses. Conditioning programs, coaching philosophies.
- 3175. COACHING ICE HOCKEY.** (2 cr; §PE 3175)  
Fundamental skills, systems of offense and defense, strategy and rules of the game, methods of organizing practices.
- 3176. COACHING SWIMMING.** (2 cr; prereq #)  
Theory of coaching and teaching aquatics. Review of literature available on the competitive swimming and diving field, discussion of coaching philosophy, techniques and methods.
- 3177. COACHING TENNIS.** (2 cr; prereq #)  
Strategies, fundamentals, offense and defensive systems, practice drills, and training techniques.
- 3178. COACHING TRACK AND FIELD.** (2 cr; prereq #)  
Fundamentals, mechanical analysis of events, training techniques, and strategies.
- 3179. COACHING WRESTLING.** (2 cr; prereq #)  
Analysis of physical skills, training aspects, practice sessions, rule interpretations, and coaching philosophies that formulate a sound wrestling program.
- 3180. PRACTICUM IN COACHING.** (3 cr; prereq #)  
Supervised experiences in coaching.
- 3270. COACHING BASEBALL.** (2 cr; prereq #)  
Fundamentals, practice sessions, training techniques, and offensive and defensive strategies.
- 3271. COACHING SOFTBALL.** (2 cr; prereq #)  
Fundamentals, practice sessions, training techniques, and offensive and defensive strategies.
- 3272. COACHING FOOTBALL.** (2 cr; prereq #)  
Systems of offense and defense, strategy and methods of organizing practices and working with team members.

## COMMUNICATIVE DISORDERS (CD) (CE)

- 1120. PRINCIPLES OF VOICE AND DICTION.** (2 cr; offered when feasible)  
A course in applied phonation and phonology designed for the student interested in raising his or her level of competence in voice production and diction.
- 1124. EFFECTIVE LISTENING.** (1 cr; offered when feasible)  
Liberal arts orientation. Designed to increase listening comprehension by developing three central abilities: reading, theory, and practice.
- 1125. EFFECTIVE LISTENING.** (1 cr; offered when feasible)  
Business and professional orientation. Designed to increase listening comprehension by developing three central abilities: reading, theory, and practice.
- 1130. TEACHING YOUR CHILD TO TALK.** (1 cr; offered when feasible)  
Designed for parents and prospective parents. This course outlines how the child learns to talk; describes the parents' role in speech and language development; identifies developmental danger signals; and gives suggestions for facilitating children's speech and language development.
- 1990. INTRODUCTION TO PHONETICS.** (4 cr)  
Study and practice in use of the International Phonetic Alphabet with relation to English and certain non-English speech sounds as they occur separately and in connected speech. Designed for the English, modern language, speech, and communicative disorders student.
- 3111. INTRODUCTION TO COMMUNICATIVE DISORDERS.** (3 cr; prereq #)  
Overview of normal speech development and function. An introduction to speech, language, and hearing disorders and their management. Professional role and responsibilities of the speech clinician.
- 3211. FUNDAMENTALS OF SPEECH SCIENCE.** (3 cr; prereq #)  
An introductory course designed to acquaint the student with the structure and function of the neuromuscular system in breathing, phonation, and articulation, and with the acoustic correlates of speech production.
- 3212. FUNDAMENTALS OF HEARING SCIENCE.** (3 cr; prereq 3211 or #)  
An introductory course designed to acquaint the student with the structure and function of the peripheral and central auditory system, and with basic principles underlying the perceptual hearing process.
- 3311. ARTICULATION DISTURBANCES.** (4 cr; prereq 3111, 3211)  
Methods of diagnosis, evaluation, and treatment of articulation disturbances.

## Course Listings

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- 3411. ORGANIC DISORDERS.** (4 cr; prereq 3111)  
An introduction to the etiology, evaluation, and management of those persons presenting neurophysiological and maxillofacial disturbances as they affect oral communication.
- 3510. STUTTERING.** (4 cr; prereq 3111)  
Study of etiologies and management of stuttering.
- 3610. VOICE DISTURBANCES.** (4 cr; prereq 3211)  
Diagnosis and treatment of organic and nonorganic voice disturbances.
- 3711. INTRODUCTION TO AUDIOLOGY.** (3 cr; prereq 3212)  
Audiometry as it occurs clinically and in the public schools. Modern hearing aids, their construction and usage. Includes laboratory experience.
- 3810. AURAL REHABILITATION.** (4 cr; prereq 3711)  
Theory, principles, and methods of speechreading and auditory training for acoustically handicapped children and adults. Consideration of visual perception and auditory discrimination. Includes laboratory experience.
- 3901. CLINICAL METHODS.** (5 cr; prereq #)  
Theory and methodology of diagnosis and treatment of individuals with language and speech disorders. This course is designed to synthesize information regarding the broad topic of interaction within the speech clinical setting.
- 3909. SEMINAR: CLINICAL PROCEDURES.** (5 cr; prereq 3901)  
Summer clinic experience involving learning theories, assumptions, modes and methods applicable to the therapy setting. Study of preprepared videotaped therapy sessions. Critical analysis of student's current videotaped therapy procedures.
- 3910. CLINICAL PROCEDURES.** (1-3 cr [may be repeated for a max of 3 cr]; prereq #)  
Observation and subsequent supervised clinical practicum with speech- and/or hearing-impaired persons.
- 3995. COMMUNICATIVE DISORDERS: INTERNSHIP.** (7 cr; prereq sr communicative disorders major; 5 one-half days per wk)  
Professionally supervised clinical practicum with preschool and/or school aged children.
- 5100. ORAL COMMUNICATION DISORDERS.** (3 cr; not open to dept majors)  
A course designed for teachers, counselors, parents, and family members in the recognition, acceptance, and management of children and/or adults possessing communication disturbances of speech, language, and hearing as they exist in the school, home, employment, or social setting. Case studies will utilize observation and audiovisual materials.
- 5110. NORMAL LANGUAGE DEVELOPMENT.** (4 cr; prereq #)  
Study of the physical, psychological, and environmental requisites for normal speech and language development. Characteristic phases of language development and implications of language behavior for social and academic adjustment.
- 5200. WORKSHOP: (Various Titles To Be Assigned).** (1 to 3 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunities for in-service speech clinicians and other students to concentrate study on new materials presented in the workshop format.
- 5210. LANGUAGE DISORDERS IN CHILDREN.** (4 cr; prereq 5110 or #)  
Investigation into incidence, etiology, diagnosis, and remediation of language disorders in children.
- 5400. TOPICS: (Various Titles To Be Assigned).** (1 to 3 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Selected advanced topics of timely concern to speech pathologists and others.
- 5500. COMMUNICATIVE DISORDERS IN CHRONICALLY ILL AND AGED.** (3 cr)  
Communication skills in the chronically ill and aged and the roles they play in the total rehabilitation and/or adjustment of patients. Emphasis on consideration of patient care needs in light of the nature and extent of communication description.
- 5910. INDEPENDENT STUDY.** (1-3 cr [may be repeated for a max of 6 cr]; prereq sr or grad in communicative disorders or special education and △)  
Directed study, readings, and/or projects of interest to the student in the area of communicative disorders.
- 8050. CLINICAL INSTRUMENTATION.** (1 cr; prereq #)  
Practice, care, and maintenance of electronic and mechanical instruments designed as clinical tools in the habilitation and/or rehabilitation of the speech and/or hearing handicapped.
- 8075. PARENT COUNSELING.** (2 cr; prereq #)  
Basic orientation to parental counseling for the speech pathologist.

- 8090. STRATEGIES IN CLINICAL SUPERVISION.** (3 cr; prereq #)  
Basic current information concerning administration and supervision of clinical speech programs with particular emphasis on the public school setting. Some practicum experience is included.
- 8100. RESEARCH METHODS: COMMUNICATIVE DISORDERS.** (3 cr; prereq #)  
Bibliographic techniques, design, and procedures involved in research in communicative disorders.
- 8105. LANGUAGE AND BEHAVIOR.** (3 cr; prereq #)  
The role and function of language and language systems in human behavior.
- 8175. PROBLEMS: COMMUNICATIVE DISORDERS.** (3 cr; prereq #)  
Speech screening methods, materials, and subsequent establishment of therapy in public school and paramedical settings. Historical background of communicative disorders and its parent organization. Identification and discussion of current professional issues.
- 8205. CLINICAL SEMINAR: APHASIA.** (3 cr; prereq #)  
Theoretical and practical study of the adult aphasic. Submission of a satisfactory paper plus a case study.
- 8275. CLINICAL SEMINAR: ARTICULATION DISORDERS.** (3 cr; prereq #)  
Theoretical and practical study of articulatory disturbances. Submission of a satisfactory paper plus a case study.
- 8305. CLINICAL SEMINAR: AURALLY IMPAIRED.** (3 cr; prereq #)  
Theoretical and practical study of aurally impaired individuals. Submission of a satisfactory paper plus a case study.
- 8375. CLINICAL SEMINAR: CEREBRAL PALSY.** (3 cr; prereq #)  
Theoretical and practical study of the cerebral palsied individual. Submission of a satisfactory paper plus a case study.
- 8405. CLINICAL SEMINAR: CLEFT PALATE.** (3 cr; prereq #)  
Theoretical and practical study of the postoperative cleft palate patient. Submission of a satisfactory paper plus a case study.
- 8475. CLINICAL SEMINAR: LANGUAGE DISORDERS.** (3 cr; prereq #)  
Theoretical and practical study of language-handicapped children. Submission of a satisfactory paper plus a case study.
- 8505. CLINICAL SEMINAR: STUTTERING.** (3 cr; prereq #)  
Theoretical and practical study of individuals with arrhythmical patterns of speech. Submission of a satisfactory paper plus a case study.
- 8575. CLINICAL SEMINAR: VOICE DISTURBANCES.** (3 cr; prereq #)  
Theoretical and practical study of voice disturbances. Submission of a satisfactory paper plus a case study.
- 8900. PROJECTS IN COMMUNICATIVE DISORDERS.** (1-9 cr; prereq #)  
Individual project or research under faculty supervision.
- 8956. INTERNSHIP-COMMUNICATIVE DISORDERS.** (3 cr [may be repeated for a max of 6 cr]; prereq #)  
Supervised clinical practicum including program development, case management, interprofessional interaction, and planning.

## DANCE (DN)

## (SFA)

- 1101. MODERN DANCE TECHNIQUE.** (3 cr [may be repeated for a max of 9 cr]; 2 hrs lect, 3 hrs lab)  
Beginning work in modern dance technique with emphasis on modern dance as a performing art form.
- 1111. JAZZ DANCE TECHNIQUE.** (3 cr [may be repeated for a max of 9 cr]; 2 hrs lect, 3 hrs lab)  
Beginning work in jazz dance technique with emphasis on jazz dance as a performing art form.
- 1121. ETHNIC STYLES OF DANCE.** (3 cr [may be repeated for a max of 9 cr]; 2 hrs lect, 3 hrs lab)  
Classical techniques of East Indian, Spanish, Afro-Haitian, or Oriental dance, with an introduction to the role of dance as an art form in these cultures.
- 1321. DANCE REPERTORY THEATRE.** (2 cr [may be repeated for a max of 6 cr]; prereq #)  
Rehearsal and performance of dance theatre before an audience.
- 1500. INTRODUCTION TO THE WORLD OF DANCE.** (4 cr)  
Appreciation of dance as an art form. Development of sensitivity and critical sophistication as articulate, discriminating, dance audience members. Film and concert viewing, readings on choreographers and dancers, critiques, and laboratory experiences.
- 3201. ADVANCED MODERN DANCE TECHNIQUE.** (3 cr [may be repeated for a max of 27 cr]; prereq 1101 or #; 2 hrs lect, 3 hrs lab)  
Advanced work in modern dance technique with emphasis on modern dance as a performing art form.



## Course Listings

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- 3211. ADVANCED JAZZ DANCE TECHNIQUE.** (3 cr [may be repeated for a max of 27 cr]; prereq 1111 or #; 2 hrs lect, 3 hrs lab)  
Advanced lyrical and percussive jazz dance techniques.
- 3321. ADVANCED DANCE REPERTORY THEATRE.** (2 cr [may be repeated for a max of 6 cr]; prereq #)  
Rehearsal and performance of advanced pieces before an audience.
- 3401. DANCE COMPOSITION I.** (3 cr; prereq 3201 or 3211 and #)  
Introductory work in dance composition.
- 3402. DANCE COMPOSITION II.** (3 cr; prereq 3401 or #)  
Advanced work in dance composition.
- 3405. SPECIAL PROBLEMS IN DANCE COMPOSITION.** (3 cr [may be repeated for a max of 6 cr]; prereq #)  
Individual or group projects in choreography, culminating in a public performance.
- 3411. LECTURE-DEMONSTRATION IN DANCE.** (2 cr; prereq #)  
Independent research in a selected area of dance and preparation of a lecture-demonstration for public viewing.
- 3511. DANCE HISTORY I: PRIMITIVE TO ROMANTIC.** (3 cr; prereq 1500 or #; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of dance in Western civilization from its origins through the Romantic period.
- 3521. DANCE HISTORY II: ROMANTIC TO PRESENT.** (3 cr; prereq 1500 or #; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of dance in Western civilization from the Romantic period through the present.

## DENTAL (Den)

## (CLS)

- 1101. DENTAL ANATOMY.** (4 cr; prereq admission to dental hygiene program; 2 hrs lect, 6 hrs lab)  
A detailed macroscopic study of primary and permanent human tooth anatomy.
- 1211. BIOMATERIALS I.** (2 cr; prereq admission to dental hygiene program; 1 hr lect, 2 hrs lab)  
An introduction to the physical and chemical properties and manipulation of basic dental materials.
- 3102. HEAD AND NECK ANATOMY.** (2 cr; prereq admission to dental hygiene program; 2 hrs lect)  
A study of the anatomy of the head and neck with particular emphasis on the masticatory system.
- 3103. DEVELOPMENTAL ANATOMY.** (2 cr; prereq 3102; 2 hrs lect)  
A study of the developmental and microscopic anatomy of the head and neck with particular emphasis on the masticatory system.
- 3211. GENERAL AND ORAL PATHOLOGY.** (2 cr; prereq 3103; 2 hrs lect)  
A study of the general disease processes with particular emphasis on the pathology of the oral cavity.
- 3212. BIOMATERIALS II.** (2 cr; prereq 1211; 1 hr lect, 2 hrs lab)  
An advanced study of the properties and manipulation of dental materials and those pertinent to expanded function auxiliaries.
- 3311. PERIODONTOLOGY.** (2 cr; prereq 3103; 2 hrs lect)  
A study of the periodontium, its diseases and their treatment.
- 3411. INTRODUCTION TO ORAL RADIOGRAPHY I.** (2 cr; prereq admission to the dental hygiene program; 2 hrs lect)  
The art and science of producing oral radiographic surveys.
- 3412. INTRODUCTION TO ORAL RADIOGRAPHY II.** (2 cr; prereq 3411; 4 hrs lab)  
Development of the art and science of producing oral radiographic surveys through practice under simulated clinical circumstances.
- 3601. PHARMACOLOGY, CLINICAL EMERGENCIES.** (2 cr; prereq admission to dental hygiene program; 2 hrs lect)  
General principles of the pharmacology of drugs and agents used in dentistry. Identification and management of clinical emergencies.
- 5312. INTRODUCTION TO OCCLUSION.** (2 cr; not available for Graduate School cr; prereq 1101, 3102, 3212; 1 hr lect, 2 hrs lab-clinic)  
A study of the temporomandibular articulation and functional occlusion and their relationship to traumatic periodontal disease.
- 5402. PRINCIPLES OF RADIOLOGY AND RADIOGRAPHIC INTERPRETATION.** (2 cr; not available for Graduate School cr; prereq 3412; 1 hr lect, 1 hr seminar)  
A detailed study of the science of radiology and radiographic interpretation.

- 5413. CLINICAL ORAL RADIOGRAPHY.** (3 cr; not available for Graduate School cr; prereq 3412; 12 hrs clinic)  
Clinical application of the art and science of producing intraoral and extraoral radiographic surveys.
- 5611. ANESTHESIOLOGY.** (2 cr; not available for Graduate School cr; prereq 3103, 3601; 2 hrs lect)  
Anesthesia for dental procedures performed by the dental hygienist.

## **DENTAL HYGIENE (DH)**

**(CLS)**

- 1011. ETHICS AND PRACTICE MANAGEMENT.** (2 cr; prereq satisfactory progress in the dental hygiene program; 2 hrs lect)  
Dental office management and a review of the legal, ethical, and moral responsibilities of dental auxiliaries.
- 3301. PRECLINICAL DENTAL HYGIENE.** (4 cr; prereq Den 1101; 2 hrs lect, 8 hrs lab-clinic)  
Study and preclinical training in the procedures and techniques essential to the practice of clinical dental hygiene.
- 3701. DENTAL HEALTH EDUCATION.** (2 cr; prereq admission to dental hygiene program; 2 hrs lect)  
An introduction to dental hygiene, its history, development, and organizations followed by a study of health behavior patterns.
- 3702. DENTAL HEALTH EDUCATION.** (2 cr; prereq 3701; 2 hrs lect)  
Dental health education in the schools.
- 3703. DENTAL HEALTH EDUCATION.** (2 cr; prereq 3702; 2 hrs lect)  
Dental health education in community health centers.
- 5312. CLINICAL DENTAL HYGIENE.** (3 cr; not available for Graduate School cr; prereq 3301; 1 hr lect, 8 hrs clinic)  
Performance of dental hygiene procedures in a clinical situation.
- 5313. CLINICAL DENTAL HYGIENE.** (4 cr; not available for Graduate School cr; prereq 5312; 1 hr lect, 12 hrs clinic)  
Performance of dental hygiene procedures in a clinical situation.
- 5314. CLINICAL DENTAL HYGIENE.** (4 cr; not available for Graduate School cr; prereq 5313, Den 3311; 1 hr lect, 12 hrs clinic)  
Performance of dental hygiene procedures in a clinical situation.
- 5321. CLINICAL DENTAL HYGIENE.** (4 cr; not available for Graduate School cr; prereq 3301; 1 hr lect, 12 hrs clinic)  
Performance of dental hygiene procedures in a clinical situation.

## **EARLY CHILD CARE AND DEVELOPMENT (ECh) (CE)**

- 3101. CARING FOR THE YOUNG CHILD.** (5 cr; prereq soph status and #)  
Orientation to early child care services; basic processes of child development; exploration of personal values in relation to assuming professional roles in child care services. Includes fieldwork and practicum.
- 3102. THE YOUNG CHILD WITH SPECIAL NEEDS.** (5 cr; prereq 3101 and #)  
The young child with developmental disorders. The creative and gifted child. The child from a culturally different background. Includes fieldwork and practicum.
- 3103. PROGRAMS FOR THE YOUNG CHILD.** (5 cr; prereq 3102 and #)  
Methods for facilitating development, organization, and administration of child care facilities. Includes fieldwork and practicum.
- 3311. COMMUNICATION ARTS IN EARLY EDUCATION.** (4 cr; prereq 3103 or #)  
Developmental approach to the teaching of the communications arts (listening, speaking, reading, and writing) in early childhood education. Includes practicum.
- 3312. MATHEMATICS AND SCIENCE IN EARLY EDUCATION.** (4 cr; prereq 3103 or #)  
Mathematics and science experiences suitable for the young child. Criteria for selecting such experiences and appropriate methods for presenting them. Includes practicum.
- 3313. CREATIVE EXPRESSION IN EARLY EDUCATION.** (4 cr; prereq 3103 or #)  
Philosophy, resources, and procedures for creative expression in music, movement, and art for young children. Includes practicum.
- 3411. TRENDS AND ISSUES IN EARLY EDUCATION.** (4 cr; prereq sr status and #)  
Historical overview of the development of early childhood education in the United States. Modern developments in child care in certain other countries.
- 3511. PREPROFESSIONAL FIELD PLACEMENT.** (9 cr; prereq #)  
Supervised fieldwork for early child care and development majors in a child care institution. A seminar in professional issues in child care is given concurrently.

## ECONOMICS (Econ)

(SBE)

- 1002. INTRODUCTION TO ECONOMICS.** (4 cr [cr not allowed toward economics major or minor]; designed specifically for liberal education purposes)  
General description of the economy of the United States and an analysis of contemporary economic problems. Will introduce the student to the major economic issues and problems of the day and provide a simple framework, used by the economist, for analysis of these issues and problems.
- 1004. PRINCIPLES OF ECONOMICS: MICRO.** (4 cr)  
Demand and supply, utility, production and cost, output market analysis, input market analysis, applications of microeconomics. Of value to the general education student and required for majors in economics, business administration, accounting, and for minors in economics.
- 1005. PRINCIPLES OF ECONOMICS: MACRO.** (4 cr)  
National income accounting, national income theory, public finance, money, monetary policy, international trade, economic growth. Of value to the general education student and required for majors in economics, business administration, accounting, and for minors in economics.
- 1203. STATISTICAL METHODS.** (4 cr; prereq 1004 and 1005)  
Descriptive statistics for samples, probability, random variables and their distributions, sampling, estimation, hypothesis testing, regression, and correlation.
- 1204. QUANTITATIVE RESEARCH METHODS.** (4 cr; prereq 1203)  
An introduction to empirical social-scientific research, including design and plan of research as well as quantitative techniques.
- 3001. RADICAL ECONOMICS.** (4 cr; prereq 1002 or 1004 and 1005; offered when feasible)  
A study of the radical Marxist critique of the traditional economic models based on the market, and of the methodology used in developing and applying these models. A study of alternatives to the market system and of the institutional approach to economic analysis. Analysis of some of the current economic problems in the United States from the radical's perspective.
- 3005. AMERICAN ECONOMIC HISTORY.** (4 cr; prereq 1004 and 1005; offered when feasible)  
The economic development of the United States, focusing on an understanding of the historical growth process.
- 3011. HISTORY OF ECONOMIC THOUGHT.** (4 cr; prereq 1004 and 1005; offered alt yrs)  
A survey of the major authors and schools of economics.
- 3042. ECONOMICS OF TRANSPORTATION.** (4 cr; prereq 1004 and 1005; offered when feasible)  
Organization and economic aspects of the transportation system of the United States. The theory and practice of transportation rate determination. Transportation regulation and national policy. The urban transportation problem.
- 3059. SEMINAR.** (2 cr; prereq BA major in economics, sr standing or  $\Delta$ )  
Studies and reports on recent developments in theoretical and applied economics.
- 3060. SENIOR RESEARCH PROJECT.** (4 cr; prereq BS major and 5333 or 5334 or  $\Delta$ )  
Written presentations on topics of current interest in applied economics.
- 3101. QUANTITATIVE ECONOMICS I.** (4 cr; prereq 1004, 1005, 1203 and Math 1160; offered when feasible)  
An introduction to the use of elementary mathematical and statistical techniques in economic analysis.
- 3111. MICROECONOMIC ANALYSIS.** (5 cr; prereq 1004, 1005 and Math 1160)  
Behavior of households as consuming units and suppliers of resources; analysis of decision making by firms under various market conditions; introduction to welfare theory and applications of welfare theory to various market phenomena and government policies.
- 3112. MACROECONOMIC ANALYSIS.** (5 cr; prereq 1004, 1005, and Math 1160)  
Determinants of national income, employment, and price levels with particular attention to aggregate consumption and investment, and monetary and fiscal policy.
- 3333. MANAGERIAL ECONOMICS.** (4 cr, \$5333, \$5334; prereq 1204 and Math 1160)  
The application of economic analysis to business problems. Demand, costs, prices, and profits will be emphasized in developing a conceptual business-decision framework.
- 3346. PRINCIPLES OF URBAN ECONOMICS.** (4 cr; prereq 1004)  
The analysis of the growth of urban centers in a developed economy and the particular problems associated with this growth. Emphasis will be placed on the economic structure of cities so that alternative policy measures may be evaluated.
- 3652. GOVERNMENT REGULATION OF BUSINESS.** (4 cr; prereq 1004)  
An examination of the alternatives open to a free enterprise economy when economic goals have not been satisfactorily achieved by the private sector. Public regulation and ownership as well as antitrust legislation are possible ways of modifying socially unacceptable economic results.



- 3704. MONEY AND BANKING.** (4 cr; prereq 1005)  
The money and banking system—its historical pattern and present operation. The role of financial institutions with emphasis on the Federal Reserve system. Control of the commercial banking system. Monetary theory and policy and international finance.
- 3803. PUBLIC FINANCE.** (5 cr; prereq 1004 and 1005)  
Governmental expenditure patterns and revenue related to the economic system, including considerations of public goods, welfare economics, social costs, and determination of public expenditures programs in a democratic society. Distribution of tax burden, types of taxation; income, consumption, property, sales, estate, and gift. Debt policy and economic stabilization.
- 3970. INDEPENDENT STUDY.** (1-9 cr [may be repeated for a max of 9 cr]; prereq  $\Delta$ )  
For students wishing to do special work in areas useful to individual programs and objectives not available in regular course offerings.
- 5003. CONSUMER ECONOMICS.** (4 cr; prereq 1004, 1005 or #)  
Application of economic principles to major decisions of consumers. Concept of alternative choice. Opportunity cost. How to use income most effectively; use of credit; saving; insurance principles; analysis of advertising as it affects the consumer; sources of consumer information; product-testing agencies; analysis of contracts common to consumers; government efforts to protect consumers.
- 5020. CURRENT ECONOMIC ISSUES.** (1 to 6 cr [may be repeated for a max of 6 cr]; prereq 1004 and 1005 or #; offered when feasible)  
Current controversies over economic policy and the problems that underlie them. Special study of selected topics.
- 5052. ISSUES IN ECONOMIC THOUGHT.** (4 cr; prereq 3011; offered alt yrs)  
Study of the development of selected economic theories.
- 5222. QUANTITATIVE ECONOMICS II.** (4 cr; prereq 3101; offered when feasible)  
The use of mathematical and statistical techniques in economic analysis.
- 5333. TOOLS, APPLICATIONS OF ECONOMIC ANALYSIS I.** (4 cr; prereq 1204, 3111 and 3112)  
Development and applications of tools of economic research and analysis.
- 5334. TOOLS, APPLICATIONS OF ECONOMIC ANALYSIS II.** (4 cr; prereq 5333)  
Additional development and applications of basic tools of economic research and analysis.
- 5352. ECONOMIC DEVELOPMENT.** (4 cr; prereq 3112 or #; offered when feasible)  
Economic analysis of the various factors leading to the economic development of nations. Consideration of the specific problems faced by underdeveloped nations and their approaches to problem solving. Study of alternate measurements of economic development.
- 5361. REGIONAL ECONOMICS, LOCATION THEORY.** (5 cr; prereq 3111)  
An examination of the allocation of unevenly distributed and imperfectly mobile resources. Economic models will be developed based on critical variables such as population growth, technological innovation, and changes in regional income. Prediction of the future distribution of economic activity will be based primarily on changes in these variables.
- 5362. URBAN ECONOMICS.** (4 cr; prereq 5361)  
Alternate theories relating to urban growth processes will be presented and compared. Intraurban structural development models will be evaluated. Selected economic problems unique to the urban setting will be analyzed. Governmental policies with respect to the urban community will be investigated.
- 5401. BUSINESS ECONOMICS.** (5 cr, \$1004, \$1005; prereq  $\Delta$ ; cr is not available for undergraduates in the School of Business and Economics nor is it available to meet the requirements of the MBA degree)  
A comprehensive overview of basic micro and macro economic theories. Topics include demand and supply, production and costs. Analysis of both input and output markets. National income analysis, monetary and public economic policies.
- 5453. INTERNATIONAL ECONOMICS AND FINANCE.** (5 cr; prereq 3111 and 3112 or #)  
Classical and modern theory of international trade. Extension, empirical verification, and applications of modern theory. Alternative theories of international trade. Concept and measurement of balance of payments. Methods of balance of payments adjustments. Alternative international monetary systems. Selected current issues.
- 5622. INDUSTRIAL ORGANIZATION.** (4 cr; prereq 1203 and 3111)  
An examination of the theory of industrial organization, its verification from empirical studies, and policy implications.
- 5752. MONETARY ECONOMICS.** (4 cr; prereq 3112 and 3704)  
Problems in monetary theory; Federal Reserve control of financial institutions; money market strategy and principal problems in monetary policy including goals, targets, and indicators.
- 5821. PUBLIC FINANCE.** (3 cr; prereq 3803; offered when feasible)  
Government expenditures, budgeting, fiscal policy, debts, and taxes; special emphasis on economic effects including tax incidence, tax principles, practices, and policies.

**8411. MANAGERIAL ECONOMICS.** (3 cr; prereq 5401 or equiv or #)

The application of economic theory to management decision making and policy formulation within the firm. Topics include demand analysis, production and cost analysis, capital budgeting, and price analysis.

## EDUCATION (Educ)

(CE)

**1100. HUMAN GROWTH AND DEVELOPMENT.** (3 cr; St. Luke's nursing program students only)

A survey study of developmental factors and processes from infancy to senescence.

**1101. EDUCATION IN MODERN SOCIETY.** (4 cr)

A survey of the various educational institutions and practices used in the different sectors of society.

**3201. EFFECTS OF NARCOTICS AND ALCOHOL.** (1 cr; prereq Hlth 1101 or #; required of all candidates for Minnesota tchg licensure; autotutorial instruction time ar)

A study of the physiological and psychological effects of various drugs upon the human system and the impact of drug use upon various subgroups within our society.

**3203. DRUG USE INFORMATION AND EDUCATION.** (1 cr; prereq 3201 or #3201 or #; required of all candidates for Minnesota tchg licensure; small group seminars 2 hrs per wk)

An investigation of the means, reasons, and pressures for drug use among the various subgroups within our society, with a concentration on adolescent use of drugs and an appraisal of current drug education programs.

**3234. SCIENCE, TECHNOLOGY AND SOCIETY.** (3 cr)

A nontechnical study of the historical and cultural impact of natural science and technology on the earth and its inhabitants.

**3810, 3811. INDEPENDENT STUDY.** (1-3 cr each; prereq #)

**5125. DISCIPLINE.** (2 cr; prereq #)

An examination of the various historical and current theories and influences on discipline and room management.

**5127. MOTIVATING MATHEMATICS LEARNING.** (2 cr; prereq tchg exper and #)

Special techniques, materials, and activities for interesting students in the learning of mathematics. How to make mathematics fun, meaningful, and relevant to learners.

**5129. BEHAVIOR CHANGE TECHNIQUES.** (1-3 cr; prereq #)

Introduces the student to a series of proven techniques to raise self-esteem and improve the ability to deal effectively with a variety of difficult situations such as holding ground in a debate, getting novel ideas across to peers and superiors, etc.

**5131. MOTIVATION STRATEGIES.** (2 cr; prereq #)

A description and analysis of the design, impact, and outcome of effective and unusual motivational strategies employed in education, business, and industry. Opportunities for class participants to adapt intriguing procedures to fit the unique characteristics of their clients and institutional setting.

**5133. MUSIC, MEDIA, AND HUMAN BEHAVIOR.** (2 cr; prereq #)

The effects of music and mass media on human behavior, special analysis techniques, intensive analyses of media that tend to mystify, glamorize, and glorify the use of psychoactive chemicals in our society.

**5137. MORAL DEVELOPMENT IN EDUCATION.** (1-3 cr; prereq #)

Examines the parameters of moral development as theorized by Laurence Kohlberg. Practical implications for the classroom teacher will be stressed.

**5139. TRANSACTIONAL ANALYSIS IN EDUCATION.** (1-3 cr; prereq #)

An introductory offering examining the implications of transactional analysis for the educational setting.

**5141. RACISM AND SEXISM IN SCHOOLS.** (2 cr; prereq tchg exper or #)

The Minnesota State Department of Education has developed a model for revision and development of the instructional system to eliminate racism and sexism in the public schools. Students will develop expertise in using this instrument.

**5143. APPRAISING TEACHER PERFORMANCE.** (2 cr)

An overview of current teacher appraisal systems with emphasis upon the development, implementation, and administration of each system. Specific topics include the role of students, peers, and administrators in teacher appraisal, a review of instruments currently in use, the construction of rating scales and teaching performance tests, appraisal counseling, recent legislation on teacher evaluation, and the effect of appraisal on motivation. Participants will construct an appraisal system for their own situation.

**5145. THE FUTURE AND EDUCATION.** (2 cr)

Study of the effects of technological and social changes upon education and of the future-conscious educational program.

- 5169. LEARNING DIFFICULTIES.** (3 cr; prereq tchg exper or #)  
Evaluation of results of teaching; diagnosis of pupil learning difficulty; development and prevention; tests as aids to teaching; following up a testing program.
- 5200. EXPERIMENTAL STUDY OF CHILDREN.** (3 cr; prereq sr or tchg exper or #)  
Experience with various techniques of observing behavior, record keeping, and methods of analyzing and interpreting behavior records; lectures, discussions, and laboratory exercises.
- 5201. PIAGET FOR TEACHERS.** (3 cr; prereq tchg exper or #)  
Piaget's theory of intellectual development; experience with developing, administering, and interpreting conservation and other performance tasks; application of the theory to teaching in areas such as mathematics and science.
- 5205. PSYCHOLOGY OF LEARNING MATHEMATICS.** (3 cr; prereq #)  
Intellectual development of students K-12 as related to mathematics learning, mathematical concept formation, sources of mathematical learning difficulties, intuitive and formal learning, reading mathematics material.
- 5223. SUPERVISION OF STUDENT TEACHING.** (3 cr; prereq 15 cr in education and #)  
For persons planning to supervise or administer student teaching and other professional laboratory experiences in elementary and secondary education.
- 5231. PROGRAMMED INSTRUCTION IN THE CLASSROOM.** (3 cr; prereq tchg exper and #; offered summer only)  
Introduction to the principles and techniques of programmed instruction; survey of available programs and devices; problems in development and use of programs in elementary and secondary school classrooms.
- 5236. ENVIRONMENTAL EDUCATION FOR TEACHERS.** (1-3 cr [may be repeated for a max of 3 cr]; prereq #)  
Combines environmental study with field experiences to prepare preservice and in-service teachers for implementation of environmental learning experiences in the school curriculum, grades K-12, all subjects.
- 5251. PROGRAM-SPECIFIC READING INSTRUCTION.** (1-4 cr [may be repeated for a max of 6 cr]; prereq tchg exper in reading or #)  
Intensive study and critique of a school district's comprehensive reading program. Extensive implementation and evaluation of resultant program modifications.
- 5285. THE COMMUNITY SCHOOL.** (3-6 cr; prereq #)  
For experienced elementary and secondary school teachers and administrators, and other professional leaders in education from rural village communities. Role of the school as a learning situation for students and as an agency responsible for the continuous growth of adults; analysis of a wide range of community school situations; relationships with other agencies. Description of a particular community school and the solution of a problem within its framework is a part of the responsibility of each class member.
- 5290. PERSONALIZED TEACHING: INTRODUCTION.** (3 cr; prereq tchg exper or #)  
A survey course primarily for in-service teachers with emphasis on more flexible classroom organization, scheduling, and grouping for instruction; on affective education; and on greater student involvement in learning experiences.
- 5300. PRACTICUM IN EDUCATION.** (1-16 cr [may be repeated for a max of 16 cr; no more than a total of 5 cr can be applied to a Graduate School program]; prereq #)  
An arranged opportunity for persons interested in gaining practical experience in a nontraditional educational program under the direction and supervision of the faculty of the College of Education. Location, type of experience, duration of experience and assessment are variables to be negotiated between the student and the advisers.
- 5305. MEASUREMENT IN THE CLASSROOM.** (3 cr; prereq Psy 3811 or #)  
Principles of measurement applied to the construction and evaluation of tests and to the interpretation of scores; illustrations from achievement, intelligence, interest, attitude, and personality tests. Each student constructs an examination in his or her major field of interest.
- 5358. MATHEMATICS THROUGH ACTIVITY.** (3 cr; prereq #)  
Teaching mathematical concepts through use of manipulative materials, discovery and problem-solving activities; Piaget applied to mathematics instruction.
- 5360. INTENSIVE READING INSTRUCTION.** (3 cr; prereq tchg exper or #)  
Instructional skill training in reading based upon principles of cognitive learning, linguistics, and applied behavior analysis. Use of multisensory procedures with persons with moderate to severe reading problems.
- 5370. READING DISABILITIES.** (3 cr; prereq EIED 5379, or basic training in counseling or school psychology, tchg exper, and #)  
Causes, prevention, and correction; remedial practices in reading useful to the classroom teacher, school counselor, and reading specialist.



## Course Listings

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- 5376. THE CULTURALLY DIFFERENT PUPIL.** (3 cr; prereq 9 cr in education or #)  
Educational needs of pupils with cultural backgrounds different from those of the majority of pupils; study of educational programs designed to meet such needs.
- 5379. HUMANIZING EDUCATION.** (3 cr; prereq 10 cr in education)  
Provides theory and practice opportunities for developing more human-centered approaches to learning. Emphasis on the affective domain.
- 5381. TEACHING THE AMERICAN INDIAN PUPIL.** (4 cr; prereq 10 cr in education)  
Survey of contemporary Indian education scene; evaluation of one's attitudes toward Indian pupils; direct interaction with Indian parents and students; development of culturally sensitive teaching plans regarding Indians.
- 5386. DEVELOPING COMMUNITY LEADERSHIP.** (3 cr; prereq 10 cr in education)  
Appraisal of community educational agencies; process of and responsibilities for community leadership; role of the school in the rural community; coordination of the school with nonschool educational agencies.
- 5391. DATA PROCESSING.** (3 cr, \$BOEE 1204; prereq #)  
History, basic philosophy; types of operations performed and machines used in these operations; actual writing of several standard data processing computer programs.
- 5392. APPLIED DATA PROCESSING.** (3 cr; prereq 5391 or #)  
Systems analysis, systems design, coding, programming, field testing, and implementation of student selected projects.
- 5400. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated; no more than a total of 6 cr can be applied to a Graduate School program]; prereq tchg exper and #)  
Opportunities for experienced teachers to concentrate study on common curricular and instructional problems.
- 5401. THE CREATIVE AND INTELLECTUALLY GIFTED.** (3 cr; open to jrs and above)  
An introductory study of identification processes for, characteristics of, service needs of, and program differences for the high potential student.
- 5402. EDUCATION OF THE GIFTED.** (3 cr; prereq 5401 or #)  
Development of curricula to meet the needs of the intellectually gifted in regular or special class settings.
- 5403. PRACTICUM.** (3 cr; prereq 5402 or #)  
Direct observation and instructional experience with gifted children in regular and special classes.
- 5410. CLASSROOM LEARNING AND MOTIVATION.** (4 cr; prereq completion of an undergrad teacher preparation program or #)  
Application of principles of learning and motivation to classroom teaching, factors that affect achievement and adjustment from both the cognitive and affective areas.
- 5412. THE COMPUTER IN EDUCATION.** (1-4 cr [may be repeated for a max of 4 cr]; prereq #)  
An introductory, nontechnical course. Individualized study programs will be developed for study of topics such as the computer's use in education, data processing in education, instructional time sharing, MECC, introduction to BASIC, writing instructional programs.
- 5420. RESEARCH METHODS IN EDUCATION.** (4 cr; prereq admission to MEd or MA program or #)  
The planning, design, implementation, analysis of data, evaluation, and reporting associated with classroom research and research within school systems.
- 5430. EVALUATION IN EDUCATION.** (4 cr; prereq completion of undergrad teacher preparation program or #)  
Principles and methods in evaluation and improvement of classroom instruction with an emphasis on determination of appropriate objectives and relating of testing to objective.
- 5610. TEACHING HANDICAPPED STUDENTS.** (1-6 cr, \$EIEd 3530; prereq SpEd 5305 or #)  
Supervised teaching experience with handicapped students plus periodic seminars.
- 5651. DRUG ABUSE INFORMATION.** (3 cr; prereq tchg exper or working exper in a human services occupation or #)  
A multimedia instructional program designed to provide persons who work with young people with the basic information about the psychological and physiological effects of commonly abused drugs. The program also probes into the reasons for drug use and abuse in our society and provides an opportunity for the participants to begin the design of a drug abuse prevention program appropriate for their situation.
- 5672. PRACTICUM: READING DIAGNOSIS.** (3 cr; prereq 5370, SpEd 5371, tchg exper, and #)  
The relationship of reading difficulty to psychological factors and its clinical remedial correction.
- 5673. PRACTICUM: READING REMEDIATION.** (3-6 cr; prereq 5370, SpEd 5371, tchg exper, and #)  
Remedial tutoring of individual children who have experienced difficulty in school learning.
- 5676. READING SUPERVISION.** (3 cr; prereq 5672, SpEd 5371, tchg exper, and #)  
Supervision and direction of sequential reading programs; review of contemporary programs; planning, design, and administration of appropriate programs for schools and school systems.

- 5752. TEACHING FOR CREATIVE WRITING.** (4 cr; prereq tchg exper or #)  
Nature of creativity as it applies to writing. Role of motivation in creative writing. Description of current research. Creative writing experiences for classroom teachers. Criteria for evaluation of writing. Development of teaching materials and programs.
- 5801. PROGRAMS, PROCEDURES OF CURRICULUM DEVELOPMENT.** (3 cr; prereq EdSe 5233 or EEd 5401 and/or #)  
Leadership in procedures, operational processes; major consideration in planning and organizing, interpersonal relationships, and evaluation of improvement programs.
- 5821. LOGIC FOR TEACHERS.** (3 cr; prereq 9 cr in education)  
A study of ways to clarify meaning, to give better structure to a body of knowledge, and to encourage critical thinking. Case studies in elementary and secondary education.
- 5841. HISTORY OF AMERICAN EDUCATION.** (3 cr; prereq 9 cr in education or #)  
Selected readings in American intellectual, political, economic, and social development; special reference to an emerging system of public education.
- 5842. GLOBAL PERSPECTIVES IN EDUCATION.** (3 cr; prereq #)  
A comparative study of education in selected countries, including our own. Special attention to the cultural context of schools and to the interrelationships between education and development.
- 5891. CRUCIAL ISSUES IN EDUCATION.** (3 cr [may be repeated for a max of 9 cr]; prereq 9 cr in education)  
A study of current controversial issues in contemporary education.
- 5892. VALUES AND EDUCATION.** (4 cr)  
Critical study of the values implicit in the educational process and their bases in the economic, social, and political order. The intended and unintended effects of schooling on the value systems of students.
- 5921. AUDIOVISUAL MATERIALS.** (3 cr; prereq 9 cr in education or #)  
Characteristics, advantages, limitations, and practical use of audiovisual materials of nonprojected and projected types; practice in the operation of audiovisual equipment.
- 5922. AUDIOVISUAL MATERIALS LABORATORY.** (3 cr; prereq 5921 or #)  
Practice in planning and making materials for audiovisual education and in the use of machines and equipment.
- 5925. EDUCATIONAL TECHNOLOGY MANAGEMENT.** (4 cr; prereq 5921 or #)  
Administration of instructional resources, learning resource centers, media storage and retrieval systems, and in-service media programs. Developing instructional systems.
- 5941. MULTIMEDIA PRODUCTION.** (2 cr; prereq 5915, 5921 or #)  
Experience in designing, organizing, and developing multimedia productions. Multimedia presentations are produced for use in the classroom setting.
- 5943. CLASSROOM USES OF VIDEOTAPE.** (2 cr; prereq #)  
Practical use of the videotape recorders in the classroom, television history and development, "hands-on" experience with several models, team approach to production, studio production, techniques for classroom use.
- 5950. INDEPENDENT STUDY.** (1-6 cr [may be repeated for a max of 6 cr]; prereq special or grad standing and #)  
Directed independent study, readings and/or projects of interest to the student in education.
- 5951. TOPICS IN EDUCATION.** (1 to 6 cr [may be repeated for a max of 6 cr]; prereq #)  
Topics are selected from the field of education to meet the special needs and interests of different groups of students. The topics considered may differ each time the course is offered. Specific course content will be announced in the *Class Schedule*.
- 8950.\* PROBLEMS IN CURRICULUM CONSTRUCTION.** (3-9 cr per qtr; prereq admission to candidacy for master's degree and #)  
Opportunity for students to work individually on specific problems in elementary or secondary education.
- 8951.\* PROBLEMS IN EDUCATION.** (1-9 cr [may be repeated for a max of 9 cr]; prereq consent of major adviser)  
Opportunity for students to work individually on problems or projects in education.

## EDUCATION, SECONDARY (EdSe)

(CE)

- 1201. PHASE I: ORIENTATION TO TEACHING.** (2 cr, §SeEd 1201)  
Classroom observations; assessment of oneself as a potential teacher; personal goal setting.
- 3101. PHASE II: LEARNING THEORY APPLICATIONS.** (7 cr, §SeEd 3101; prereq admission to secondary teacher education program)  
Adolescent development, learning and motivation, evaluation, and classroom management are studied in relation to their application to the classroom. Students also participate in a practicum experience under the supervision of a certified teacher.

## Course Listings

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- 3202. PHASE III: HUMAN RELATIONS.** (4 cr, §SeEd 3201, §SeEd 3202; prereq 3101 or △)  
Human relations for preservice teachers. Role of the school in combating racism and sexism; information about and experience with cultural differences in society; consideration of curricular and teaching strategies.
- 3222. TEACHING MATHEMATICS—SECONDARY.** (3 cr, §SeEd 3222)  
Purposes, curriculum, materials, methods of instruction, and evaluation procedures applicable to teaching mathematics.
- 3233. TEACHING SCIENCE—SECONDARY.** (3 cr, §SeEd 3233)  
Aims of secondary school science; science teaching techniques; laboratory organization; use of community resources in developing the curriculum; appropriate means for evaluating teaching.
- 3244. TEACHING SOCIAL STUDIES—SECONDARY.** (3 cr, §SeEd 3244)  
Social studies objectives; curriculum design; use of resource materials; most effective teaching methods; instruction planning; evaluation procedures.
- 3261. METHODS OF TEACHING ECONOMICS.** (1 cr, §SeEd 3261; prereq #; offered when feasible)  
Techniques and problems of teaching economics, consumer education, business law, and other basic business subjects.
- 3301. PHASE IV: STUDENT TEACHING.** (3 to 17 cr [may be repeated for a max of 17 cr], §SeEd 3301; prereq 1201, 3101, 3202, appropriate method course and △)  
Supervised practicum. Teaching adolescents; demonstrating subject matter competencies; using multimedia and teaching materials; experience in team planning; emphasis on personalizing instruction and human relation in the classroom; self-evaluation.
- 3401. PHASE V: THE TEACHING PROFESSION.** (4 cr, §SeEd 3401; prereq 3301 or ¶3301)  
Closure experiences for preservice teachers. Study of contemporary issues, structure of education, professional activities of teachers, teacher licensure, assistance in obtaining a position, assessment of personal philosophy of education, growth in self-awareness, and interpersonal relations.
- 5123. TEACHING ABOUT WORLD ORDER.** (2 cr, §SeEd 5123; prereq tchg exper or #)  
World order education is a special variety of peace studies. It goes beyond the conventional scope of peace studies by concentrating not only on the problem of war but on the interrelated problems of poverty, injustice, or ecological devastation. Students will study issues relating to world order and develop courses suitable for secondary schools.
- 5135. ALCOHOL AND THE TEENAGER.** (2 cr, §SeEd 5135; prereq #)  
Alcohol use and abuse among teenagers, recent trends, causative factors, and ways in which educators and health providers can help to alleviate the problem. Effective intervention strategies and program planning will be emphasized.
- 5204. TEACHING JUNIOR HIGH SCHOOL MATHEMATICS.** (2 cr, §SeEd 5204; prereq 3222 or #)  
Methods and materials and organization for teaching arithmetic, general mathematics, mathematics applications, and other junior high school topics.
- 5212. LITERATURE FOR ADOLESCENTS.** (4 cr, §SeEd 5212; prereq #)  
Background for pupil guidance in extensive reading in junior and senior high schools; analysis of studies of adolescent choices in literature; principles of selection; critical reading in broad fields of literary, biographical, historical, scientific, and vocational interests of boys and girls.
- 5215. READING IN SECONDARY SCHOOLS.** (4 cr, §SeEd 5215; prereq 9 cr in education)  
Teaching procedures, objectives, and materials; emphasis upon teaching of reading in various subject-matter fields, practicum experience.
- 5223. ADVANCED COURSE: MATHEMATICS TEACHING.** (3 cr, §SeEd 5223; prereq exper in tchg mathematics and/or #)  
Methods, materials, and curriculum development; preparation and evaluation of tests, individually prescribed instructional programs, and other materials of instruction; principles of mathematics learning; problem solving; organization of programs for the slow learner and gifted.
- 5225. MATHEMATICS EDUCATION: CURRENT TRENDS.** (3 cr, §SeEd 5225; prereq 5223 and #)  
Trends and experimentation with content; criteria for local program development and evaluation; review of research and current literature; new school organizational patterns; in-service responsibilities.
- 5227. COMPUTERS IN MATHEMATICS INSTRUCTION.** (3 cr, §SeEd 5227; prereq #)  
The role of the computer in mathematics instruction; the contribution of the computer to concept formation, computational skill and problem solving; equipment and programming languages; programming; instructional materials.
- 5233. SECONDARY SCHOOL CURRICULUM.** (3 cr, §SeEd 5233; prereq #)  
Organization and design of the curriculum with special consideration of the issues, problems, trends, and recommendations for a modern high school program; analysis of selected curricula and core curriculum plans.



- 5234. CURRENT SECONDARY SCIENCE TEACHING.** (3 cr, §SeEd 5234; prereq 3233 or exper in science tchg or #)  
New science curricula, their philosophy, materials, and methods of instruction, evaluation of the curricula.
- 5235. TEACHING COOPERATIVE CLASSES.** (3 cr, §SeEd 5235; offered when feasible)  
For cooperative part-time distributive, office, miscellaneous trades, and diversified occupations classes.
- 5236. ENVIRONMENTAL EDUCATION—SECONDARY.** (1-3 cr, §SeEd 5236; prereq #)  
Combines environmental study with field experiences to prepare preservice and inservice teachers for implementation of environmental learning experiences in the school curriculum, grades 7-12.
- 5241. SOCIAL STUDIES MATERIALS LABORATORY.** (3 cr, §SeEd 5241; prereq tchg exper, 3244, and #)  
Printed and audiovisual materials useful in social studies classes.
- 5243. CURRENT SOCIAL STUDIES DEVELOPMENTS.** (3 cr, §SeEd 5243; prereq sr, 3244 or #)  
Survey of contemporary literature, curricular trends, and developments in methods.
- 5265. COORDINATION TECHNIQUE.** (3 cr, §SeEd 5265; prereq #: offered when feasible)  
Problems of coordinators in the cooperative part-time program. Guidance and selection; placing of students in work stations; assisting job adjustments; developing the training program.
- 5271. STUDENT ORGANIZATIONS AND ACTIVITIES.** (3 cr, §SeEd 5271; prereq #)  
Types of organizations and activities in junior and senior high schools; aims and values; practices in organizing, administering, and supervising; evaluation.
- 5281. DRIVER EDUCATION I.** (4 cr [no more than 4 cr of 5281-5283 may be applied toward the MA degree], §SeEd 5281)  
History, background, and general theory of driver education and traffic safety. Preparation for the classroom phase of driver education with an introduction to the in-car program.
- 5283. DRIVER EDUCATION II.** (4 cr [no more than 4 cr of 5281-5283 may be applied toward the MA degree], §SeEd 5283; prereq 5281)  
Overview of EdSe 5281. Thorough study of all phases of the in-car program and the traffic safety problem as they relate to driver education; application of theory in practical laboratory experience.
- 5285. BEHAVIORAL FACTORS: TRAFFIC PROBLEM.** (3 cr, §SeEd 5285; prereq 5281, 5283, Ind 3950)  
Emphasis on attitudes, motivation, and adjustment and their relationship to unsafe driving. Principles and methods appropriate in identifying, understanding, and modifying unsatisfactory behavior. Review of research on behavioral aspects of accident causation and behavioral change.
- 5287. PHYSICAL FACTORS: TRAFFIC PROBLEM.** (3 cr, §SeEd 5287; prereq 5281, 5283, Ind 3950)  
The planning, design, and operation of the highway transportation system in the United States with emphasis on the implications for safe, efficient, and economical driving.
- 5289. HIGHWAY TRAFFIC ADMINISTRATION.** (3 cr, §SeEd 5289; prereq 5281, 5283, Ind 3950)  
The United States highway transportation system, with emphasis on safe, efficient, and economical motor vehicle operation. Activities and agencies concerned with increasing efficiency of the transportation system. Systems development; components; social, economic, and political impacts.
- 8222. SUPERVISION OF SECONDARY INSTRUCTION.** (3 cr, §SeEd 8222; prereq PsyF 5611 or #)  
Present status, proper scope and function, principles, application to improvement of instruction.

## **EDUCATIONAL ADMINISTRATION (EdAd) (CE)**

- 5115. ELEMENTARY SCHOOL ADMINISTRATION.** (3 cr; prereq #: offered 1978-79 and alt yrs)  
Leadership in the elementary school; organizational plans; grouping; pupil progress policies and reports; parent-teacher organizations; improvement of educational programs; special services and other areas of immediate concern to principals.
- 5116. THE TEACHER AND ADMINISTRATION.** (3 cr; prereq tchg exper or #: offered 1978-79 and alt yrs)  
Functions of the teacher in school organization; administrative and supervisory relationships; budgetary practices; personnel practices and teacher welfare; homeroom and cocurricular responsibilities; records and reports; public relations; teacher organizations and professional conduct; securing advancement in the profession.
- 5117. SCHOOLS IN RURAL AREAS.** (3 cr; prereq #: offered when feasible)  
Administrative and curricular problems peculiar to rural areas; sociological changes in small towns and farm life; building a school program suited to the culture and needs of people in smaller towns and villages.
- 5123. ADMINISTERING COMMUNITY EDUCATION.** (3 cr; prereq 5117 or #: offered 1978-79 and alt yrs)  
Application of fundamental concepts of public school administration to small school systems; particular reference to rural community programs.

## Course Listings

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- 5125. LABORATORY IN EDUCATIONAL ADMINISTRATION.** (1 to 4 cr [may be repeated for a max of 4 cr]; prereq #; offered when feasible)  
Practice and analysis of administrative decisions and modes of behavior in realistic settings. Use of simulated materials, case and role analysis, and decision-making games to develop and study leadership styles and interactive behavior. Simulations in elementary school administration, secondary school administration, school business administration, and general school administration. One credit for each simulation.
- 5128. WORKSHOP: EDUCATIONAL ADMINISTRATION.** (1-6 cr; prereq practicing educational administrator or #; offered when feasible)  
Laboratory approach provides opportunities for experienced educators to concentrate their study on common administrative and supervisory problems.
- 5169. MIDDLE SCHOOL ADMINISTRATION.** (3 cr; prereq 9 cr in education; offered 1978-79 and alt yrs)  
Sources of the middle school movement; purposes, functions, and limitations; types of organization; administrative problems of curriculum reorganization.
- 5211. SCHOOL BUSINESS MANAGEMENT.** (3 cr; prereq #; offered 1977-78 and alt yrs)  
Problems and practices in school business and financial management, budget development, control and operation; collection control, and custody of cash; accounting, auditing, and reporting; procurement and management of supplies and equipment; school plant and property management, procedures for state reports.
- 5220. SPECIAL TOPICS IN SCHOOL LAW I.** (1 to 4 cr [may be repeated for a max of 6 cr])  
An intensive study of the most recent statutory requirements, current guidelines, litigation, and current applications of laws on pupil dismissal and on prohibited and permitted fees.
- 5950. INDEPENDENT STUDY.** (1-6 cr [may be repeated for a max of 6 cr]; prereq special or grad standing and #)  
Directed independent study, readings, and/or projects of interest to students of educational administration.
- 8201, 8202. FOUNDATIONS IN ADMINISTRATION.** (3 cr each)  
For all students preparing for public school administrative positions. Aspects of administration as they relate to coordination, operation, and organization of elementary and secondary schools in a local district.
- 8210. PUBLIC SCHOOL FINANCE.** (3 cr; offered 1977-78 and alt yrs)  
Current practices; sources of revenue; types of taxes; theory of taxation; formulas used for distribution of school aids; and federal, state, and local support of education.
- 8217. SEMINAR: ELEMENTARY SCHOOL ADMINISTRATION.** (3 cr; prereq 5115 or #)  
Problems of administration and organization for instruction in elementary schools, communications and social-system theory, organizational analysis, and change strategies.
- 8218. SEMINAR: SECONDARY SCHOOL ADMINISTRATION.** (3 cr; prereq 8201, 8202 and 8264 or #)  
Problems of administration and organization for instruction in secondary schools, communication and social-system theory, organizational analysis, and change strategies.
- 8224. SCHOOL LAW.** (3 cr; offered 1978-79 and alt yrs)  
Constitutional, statutory, and common law bases of school administration; principles growing out of fundamental legal procedures.
- 8226. SCHOOL PLANT PLANNING.** (3 cr; offered 1978-79 and alt yrs)  
Planning educational facilities for public and private school systems; emphasis on writing educational specifications.
- 8227. TEACHER AND EMPLOYEE ADMINISTRATION.** (3 cr; prereq 8201, 8202; offered 1977-78 and alt yrs)  
Selection and placement of school employees, salary schedules, conditions of service, records and reports, and legal aspects.
- 8235. SEMINAR: EDUCATIONAL ADMINISTRATION.** (3 cr; prereq #)  
Selected topics in school administration, application of theoretical models to problems of decision making, interpersonal relations, and goal attainment. Emphasis on case method and simulation, student analysis of processes, and use of research and writings.
- 8236. FIELD STUDY: EDUCATIONAL ADMINISTRATION.** (0-6 cr; prereq #)  
Required for specialist certificate. The 6 credits will be based on a written report covering an approved field study. Students may register for general planning and organization of their study without credit.
- 8241. INTERNSHIP IN EDUCATIONAL ADMINISTRATION.** (1-3 cr [may be repeated for a max of 3 cr])  
For interns in elementary, secondary, and general administration preparing for specialist certificate.
- 8243. PRACTICUM IN EDUCATIONAL ADMINISTRATION.** (1-3 cr [may be repeated for a max of 9 cr...no more than a total of 6 cr may be applied toward an MA degree]; prereq grad standing and #)  
For students preparing for certification as elementary or secondary principals or superintendents. On-the-job experience demonstrating achievement of specific competencies. Required for completion of Sixth Year Program in Educational Administration.

- 8264. THE SECONDARY SCHOOL PRINCIPALSHIP.** (3 cr; prereq 8201, 8202; offered 1977-78 and alt yrs)  
Factors affecting administration, staff, and student relationships, intraschool relationships, school services.
- 8265. SECONDARY SCHOOL ADMINISTRATION.** (3 cr; offered 1977-78 and alt yrs)  
Scheduling, administrative practices affecting learning, the academic program, community relationships, program evaluation.
- 8270.\* PROBLEMS: ELEMENTARY ADMINISTRATION.** (3-6 cr [may be repeated for a max of 9 cr]; prereq #)  
Independent study.
- 8271.\* PROBLEMS: SECONDARY ADMINISTRATION.** (3-6 cr [may be repeated for a max of 9 cr]; prereq #)  
Independent study.

## **ELEMENTARY EDUCATION (EIEd) (CE)**

- 1120, 1121. ELEMENTARY EDUCATION AS A CAREER.** (1 cr each; prereq #; 1 hr lect, 2 hrs participation in schools)  
Lectures, observation, and participation directed toward an understanding of career opportunities in the modern elementary school, focusing particularly on the role of the elementary school teacher.
- 1125. SOURCES OF EDUCATIONAL RESEARCH.** (1 cr)  
Using library resources, materials, and bibliographies in elementary education; application to current topics in education.
- 3108. THE CHILD AS LEARNER I.** (3 cr)  
Developmental characteristics of children; observational tools, norm-referenced and criterion-referenced tests for use with children.
- 3110. LEARNING ENVIRONMENT I.** (2 cr)  
A multimedia approach in the elementary classroom; operation of supportive equipment found in the elementary school.
- 3112. TEACHING STRATEGIES I.** (4 cr; 2 hrs lect-discussion, 6 hrs lab, 1 hr seminar per wk)  
Motivation and discipline; objectives, planning, and evaluation; classroom management, developing functional writing skills; diagnosing writing errors.
- 3114. THE CHILD AS LEARNER II.** (3 cr)  
Development of a positive self-concept in children; group processes in the elementary classroom and their effect on learning; children as members of various social and cultural groups.
- 3116. LEARNING ENVIRONMENT II.** (3 cr)  
Introduction to learning and learning theories as a basis for structuring learning environments in the elementary school; alternative individual and group settings for learning.
- 3311. TEACHING LANGUAGE ARTS—ELEMENTARY.** (3 cr; 3 hrs lect)  
Methods, materials, and research findings related to the teaching of oral and written language, spelling, handwriting, and listening at all levels of the elementary school.
- 3320. STORYTELLING.** (2 cr)  
Past and present needs for storytelling; sources and selection of suitable stories; experience in telling folktales, fairy tales, realistic stories.
- 3322. CHILDREN'S LITERATURE.** (3 cr; prereq #)  
Purposes of reading in the elementary school; bases of selecting materials for extensive readings; analysis of studies of children's interests; extensive critical survey of old and new materials for children's reading.
- 3324. CHILDREN'S LITERATURE FOR PARENTS.** (3 cr; prereq #)  
Familiarity with children's literature; criteria for choosing children's books; using books with children.
- 3344. TEACHING SCIENCE—ELEMENTARY.** (3 cr)  
Emphasis on resources and materials and their application to the elementary grades.
- 3355. TEACHING MATHEMATICS—ELEMENTARY.** (3 cr; prereq Math 1082)  
Function of mathematics instruction; curriculum studies; development of socialized units, measurement and diagnosis; experimental research on methods of mathematics instruction; literature on mathematics.
- 3366. TEACHING SOCIAL STUDIES—ELEMENTARY.** (3 cr)  
Content and organization of social studies programs; understanding and improving the learning situation; effective use of materials.
- 3373. TEACHING READING—I.** (3 cr, §3377; prereq major or #)  
Methods, materials, and research findings related to the teaching of reading at the initial level of instruction in the elementary school.



## Course Listings

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- 3374. TEACHING READING—II.** (3 cr; prereq 3373)  
Methods, materials, and research findings related to the teaching of advanced reading skills.
- 3393. THE NURSERY SCHOOL.** (3 cr; prereq #: 3 hrs lect, 1 hr observation)  
Origin, types, organization, and function of nursery schools; nursery school curricula, daily programs, equipment, and materials suitable for the 2- to 4-year-old child.
- 3395. THE KINDERGARTEN.** (4 cr; prereq #: 4 hrs lect, 1 hr observation)  
Origin, organization, and function of kindergarten; kindergarten curriculum with special emphasis on home-school relations, daily programs, teaching methods, equipment, materials, and records suitable for the 5-6 year-old child.
- 3402. TEACHING STRATEGIES II.** (4 cr; prereq 3112, 3355, 3373 or #; 2 hrs lect-discussion, 6 hrs lab, 1 hr seminar per wk)  
Planning and utilizing informal reading inventories, directed reading lessons, informal math inventories, directed math lessons, and using manipulative mathematics materials.
- 3404. TEACHING STRATEGIES III.** (4 cr; prereq 3311, 3402 or #; 2 hrs lect-discussion, 6 hrs lab, 1 hr seminar per wk)  
Higher order questioning techniques; problem-solving with children; functional and creative writing and creative dramatics with children.
- 3406. LEARNING ENVIRONMENT III.** (3 cr)  
Historical and philosophical roots of today's elementary school; professional issues, educational problems, and communication techniques in elementary teaching.
- 3413. KINDERGARTEN FIELD EXPERIENCE.** (1 cr; to be taken with 3395; prereq #: 15 hrs participation in a kindergarten)  
Experience in working with a kindergarten teacher and children; work supervised by University coordinator in cooperation with the elementary principal.
- 3414. NURSERY SCHOOL FIELD EXPERIENCE.** (1 cr; to be taken with 3393; prereq #: 15 hrs participation in area centers with preschool children)  
Experience in working with teachers and children in nursery and Montessori schools, head start and day care centers in Duluth and the area; work supervised by University coordinator in cooperation with the director of the center.
- 3500. NURSERY SCHOOL STUDENT TEACHING.** (7 cr; prereq 3393, sr in nursery school licensure program and #)  
Students may elect to do student teaching in one of two patterns: one-half day in a head start center or nursery school for 1 quarter or its equivalent, or a full day in a day care center for a minimum of 5 weeks.
- 3504. PROFESSIONAL QUARTER.** (15 cr; prereq sr, kindergarten-elementary major, Δ)  
Kindergarten-elementary student teaching, instructional strategies, classroom management, professional problems of teachers.
- 3507. STUDENT TEACHING—KINDERGARTEN, ELEMENTARY.** (1-7 cr; prereq 3504 or #)
- 3509. PROFESSIONAL QUARTER.** (15 cr; prereq sr, elementary education major, Δ)  
Elementary student teaching, instructional strategies, classroom management, professional problems of teachers.
- 3512. STUDENT TEACHING—ELEMENTARY SCHOOLS.** (1-7 cr; prereq 3509 or #)
- 5312. TRENDS IN LANGUAGE ARTS—ELEMENTARY.** (3 cr; prereq 9 cr in education)  
Improvement of instruction in language, grammar, spelling, and handwriting; results of scientific investigations; use of standardized and informal tests; remedial work.
- 5313. PUPPETRY IN TODAY'S SCHOOLS.** (3 cr; prereq Δ)  
An introduction to the use of puppetry in the classroom. History of puppetry, construction of puppets, creative activities with pupils.
- 5323. CHILDREN'S LITERATURE II.** (4 cr; prereq 3322 or #)  
Investigation of current literature available for children; opportunities for wide reading and independent study in special areas of interest; principles of selection of materials; methods of presentation; trends in children's literature.
- 5344. MODERN TECHNIQUES FOR PRESENTING SCIENCE.** (3 cr; prereq 3344 or #)  
Contemporary methods and materials used for introducing science concepts and processes in the classroom.
- 5345. TRENDS IN SCIENCE—ELEMENTARY.** (3 cr; prereq 3344 or #)  
Contemporary curriculum developments in materials and methods for elementary school science. Criteria for science program evaluation.
- 5356. MODERN MATHEMATICS—ELEMENTARY.** (3 cr; prereq Math 1082)  
Discussion of modern programs in elementary mathematics, with an inclusion of newer content growing out of current experimental activities in this area of learning.

- 5357. TRENDS IN MATHEMATICS—ELEMENTARY.** (3 cr; prereq 3355 or #)  
Contemporary literature, trends and experimentation with content; criteria for program evaluation.
- 5358. LABORATORY MATHEMATICS TEACHING.** (3 cr; prereq 3355 or #; 2 hrs lect, 2 hrs lab)  
Theory and materials for development of a laboratory approach to elementary school mathematics instruction. Criteria for evaluation of materials; development of instructional units and programs.
- 5359. PRINCIPLES OF DIAGNOSIS—MATHEMATICS.** (3 cr; prereq  $\Delta$ )  
Techniques for the diagnosis and correction of mathematical difficulties. Development of criterion-referenced materials for remediation procedures.
- 5367. TRENDS IN SOCIAL STUDIES—ELEMENTARY.** (3 cr; prereq tchg exper, #, and 3366)  
Printed, audiovisual, and other materials; investigation and evaluation of teaching materials and devices.
- 5379. MATERIALS IN READING—ELEMENTARY.** (3 cr; prereq tchg exper or #)  
Analysis and evaluation of materials for reading instruction; consideration of programmed, basal, linguistic, and other types of materials. Laboratory projects and demonstrations of techniques of instruction; criteria for selection of materials and techniques for students with special needs.
- 5394. TRENDS IN KINDERGARTEN EDUCATION.** (3 cr; prereq 3395 or tchg exper)  
Current practices in kindergarten teaching, evaluated in light of research in child development and kindergarten teaching.
- 5401. ELEMENTARY SCHOOL CURRICULUM.** (3 cr; prereq #)  
Curriculum practices, issues, and trends in the modern elementary school; survey of research studies relating to all areas of instruction and analysis of representative programs.
- 5402. ELEMENTARY SCHOOL SUPERVISION.** (3 cr; prereq #)  
Functions and duties of supervisors in improving instruction; specific techniques; likely problems; means of evaluating practical teaching situations.
- 5403. PLANNING EDUCATIONAL ALTERNATIVES.** (3 cr; prereq tchg exper or #)  
Survey of alternative school programs; examination of curricula and materials; procedures for systematic study of options within a classroom, school, or district.
- 5411. SUBSTITUTE TEACHING.** (3 cr; prereq  $\Delta$ )  
Overview of methods and practices related to selection, guidance, and evaluation of substitute teachers. Development of classroom control procedures, teaching techniques and preparation of "package" teaching materials.
- 5451. TEACHING OF THE METRIC SYSTEM.** (2 cr; prereq 3355 or #)  
Objectives, techniques, and materials of teaching the metric system in the elementary school; criteria for evaluating materials; development of instructional units and programs.
- 5800. HUMAN RELATIONS IN TEACHING.** (3 cr; prereq admission to elementary teacher education program, tchg exper or #)  
The development of a good self-concept for positive interpersonal relations; recognizing and changing teacher attitudes toward persons of different cultural groups and life-styles.

## ENGINEERING (Egn)

(CLS)

- 1000. INTRODUCTION TO ENGINEERING.** (2 cr; 2 hrs lect)  
An introduction to the field of engineering presented by practicing engineers and members of the faculty. Topics include the engineering curriculum, engineering careers, basic engineering procedures and practices, creativity in engineering, professional responsibilities, the engineer's role in society.
- 1015. STATICS.** (4 cr; prereq Math 1297 and Phys 3080)  
Vector algebra. Applications of the equations of equilibrium to the analysis of simple engineering structures and machines. Nature and influence of friction. Elementary theory of statically determinate framed structures. Deformation of structures with axially loaded elements.
- 1016. DEFORMABLE BODY MECHANICS.** (4 cr; prereq 1015 and Math 3298)  
Introductory treatment of stress and strain at a point. Stress-strain relation in two dimensions. Linear theory of torsion. Bending stresses. Deflection of determinate and indeterminate beams. Instability.
- 1025. ENGINEERING GRAPHICS.** (4 cr; 3 hrs lect, 4 hrs lab; offered when feasible)  
Engineering representation and analysis of systems of projection; the coordinate system, graphical solution of space problems, intersections, and developments. Precision in graphics and techniques of sketching; pictorial projection systems, size description, standard and simplified practices applied to graphic communication.

## ENGLISH (Engl)

(CLS)

- 1106-1107. FRESHMAN COMPOSITION.** (4 cr each; cr not applicable to English major or minor; prereq only for students speaking English as a second language: 1801 or  $\Delta$ )  
Expository and argumentative writing.
- 1501. IMPROVING READING COMPREHENSION.** (4 cr; prereq 1107 or #)  
Reading of nonfiction at various levels of difficulty.
- 1504, 1505. MASTERWORKS OF ENGLISH LITERATURE.** (4 cr each)  
A chronological study of selected masterworks of English literature.
- 1523. MEDIEVAL LITERATURE I.** (4 cr)  
A survey of the forms of life, thought, and art from the 12th to the 15th century with special regard to English literature of the Middle Ages.
- 1533. 16TH-CENTURY ENGLISH LITERATURE I.** (4 cr; offered when feasible)  
Readings for the beginner in works of the period, including Shakespeare.
- 1543. 17TH-CENTURY ENGLISH LITERATURE I.** (4 cr)  
Readings for the beginner in works of the period, including Milton.
- 1553. 18TH-CENTURY ENGLISH LITERATURE I.** (4 cr)  
Readings for the beginner in works of the period.
- 1561. 19TH-CENTURY AMERICAN LITERATURE.** (4 cr; not for English majors or minors)  
Major American writers; particularly for sophomores who are not English majors or minors, but who wish to become acquainted with the principal works in the American literary heritage.
- 1565. ROMANTIC PROSE AND POETRY I.** (4 cr)  
Readings for the beginner in English literature, 1790-1830.
- 1566. VICTORIAN PROSE AND POETRY I.** (4 cr)  
Readings for the beginner in English literature, 1830-1901.
- 1572, 1573. 20TH-CENTURY LITERATURE.** (4 cr each; for students in all depts, and not particularly for those specializing in English)  
Readings in British and American literature since the 1890s, arranged by types of discourse. 1572: Poetry and drama. 1573: The novel since Thomas Hardy; a general introduction to intelligent reading of literature.
- 1801. ENGLISH AS A SECOND LANGUAGE.** (2-5 cr [may be repeated for a max of 10 cr]; prereq #)  
Standard American English for speakers of other languages and other dialects.
- 1811. INTRODUCTION TO LANGUAGE.** (4 cr)  
The study of the nature of language and a survey of the branches of linguistic science.
- 1905. INTRODUCTION TO LITERATURE.** (4 cr, §1906)  
Introduction to the principal literary forms, and methods of critical analysis and interpretation of fiction, poetry, and drama.
- 1906. ESSENTIALS OF LITERARY ANALYSIS.** (4 cr, §1905; prereq 1107 or #; for English majors and minors only)  
Introduction to basic reference works, terminology, main literary classifications, and major methods of evaluative criticism.
- 3111. ADVANCED WRITING.** (4 cr [may be repeated for a max of 8 cr including 1111]; prereq 1107)  
Writing of essays and articles, stressing adequate content, logical analysis and organization, and general interest and popular appeal.
- 3114. INTRODUCTION TO WRITING CAREERS.** (2 cr, §1114; prereq 1107)  
Study of writing careers in editing, copywriting, public relations work, magazine writing, and related fields.
- 3115. WRITING FICTION.** (4 cr, §3112; prereq 1107 or #)  
Writing of fiction with emphasis on structure and techniques learned from critical reading and classroom analysis.
- 3131. ADVANCED TECHNICAL WRITING.** (4 cr; prereq 1107 or #; offered when feasible)  
Intensive training in the forms and techniques of presenting technical and scientific information on a level suitable to the intended audience.
- 3223. SHAKESPEARE.** (4 cr)  
An introduction to Shakespeare. Selected plays from the histories, comedies, tragedies, and dramatic romances. Such aspects of drama as structure, language, characterization, theme, and dramatic conventions will be examined in the study of individual plays.
- 3271, 3371, 3471. CONTEMPORARY LITERATURE.** (4 cr each; for students in all depts, not particularly for those specializing in English)  
Readings in American and British literature since 1945 arranged by types of discourse. 3271: Drama. 3371: Poetry. 3471: Novel.



- 3506, 3507, 3508. WORLD LITERATURE.** (4 cr each; for students in all depts, not particularly for those specializing in English)  
Great works of literature from the Greek period to the 20th century. 3506: Greek and Roman. 3507: Medieval and Renaissance. 3508: 17th century to the 20th century.
- 3511. CONTINENTAL LITERATURE.** (4 cr; students may substitute Fr 3511, Ger 3511, or Span 3511 for Engl 3511 in selecting electives in English and may take all four courses if they wish; offered when feasible)  
Reading of continental literature in translation.
- 3521. OLD ENGLISH LANGUAGE AND LITERATURE.** (4 cr; offered when feasible)  
Introduction to Old English: its sounds, grammar, vocabulary, and relation to Modern English. A survey of Old English literature with selected readings of poetry and prose.
- 3573, 3574, 3575. AMERICAN LITERATURE.** (4 cr each)  
Notable American authors from the 17th century to the present. 3573: Colonial and Revolutionary periods. 3574: The 19th century. 3575: The 20th century.
- 3593. SPECIAL TOPICS.** (2-6 cr [may be repeated for a max of 10 cr], §3591; for students in all depts, not particularly for those specializing in English; offered when feasible)  
The study of topics falling outside the usual English courses. Topic to be announced prior to offering the course.
- 3597. SENIOR SEMINAR.** (4 cr [may be repeated for a max of 8 cr and may be used in place of required BAA courses with permission of dept head]; prereq sr English major or minor)
- 3904. TUTORING STUDENTS IN COMPOSITION.** (2 cr; prereq admission to Supportive Services tutorial program)  
An explanation of a basic composition course and areas in which students most commonly need tutoring.
- 3905. PRACTICUM IN TUTORING.** (2 cr [may be repeated for a max of 6 cr]; prereq approval of Supportive Services staff member and permanent member of Freshman Composition staff)  
Supervised tutoring of college students having difficulty with their composition courses.
- 3912. TEACHING THE LANGUAGE ARTS.** (4 cr; prereq EdSe 3202)  
Problems in the teaching of the language arts; suggested methods and materials of instruction.
- 5115. INTERNSHIP IN WRITING.** (2 cr [may be repeated for a max of 4 cr], §1115; prereq 1111 or 3111 or 3114 or #)  
Practical writing experience as arranged with a cooperating business or government agency.
- 5116. ADVANCED WRITING OF FICTION.** (4 cr [may be repeated for a max of 8 cr], §5111; prereq 3112 or #)  
Writing of short stories, plus class reading and criticism of student manuscripts.
- 5121. POETRY WRITING.** (4 cr [may be repeated for a max of 8 cr]; offered when feasible)  
Writing of poems with emphasis on techniques learned through critical reading and classroom analysis of student work.
- 5202. INTERPRETATION OF DRAMA.** (4 cr; prereq 8 cr of literature; offered when feasible)  
Certain technical aspects of reading drama in relation to meaning.
- 5222. SHAKESPEARE.** (4 cr; prereq 8 cr of literature)  
Concentrated study of selected plays, with attention to Shakespearean criticism and scholarship. Recommended as the second course in Shakespeare.
- 5251. AMERICAN DRAMA.** (4 cr; prereq 8 cr of literature) Hart  
Critical survey, primarily of period from 1914 to present, with some attention to historical and cultural background; some representative plays of 18th, 19th, and early 20th centuries.
- 5271. MODERN BRITISH DRAMA.** (4 cr; prereq 8 cr of literature) Duncan  
Historical study of British drama from 1900 to the present: Shaw, Synge, O'Casey, Fry, Osborne, Beckett, Pinter, and others.
- 5303. THE INTERPRETATION OF POETRY.** (4 cr) Tezla  
Certain technical aspects of poetry in relation to meaning.
- 5311. CHAUCER.** (5 cr) Jankofsky  
Introduction to Middle English. Reading and analysis of the works of Chaucer.
- 5331. MILTON.** (4 cr; prereq 8 cr of literature) Duncan  
Minor poems, *Areopagitica*, *Paradise Lost*, and *Samson Agonistes*.
- 5411. INTERPRETATION OF THE NOVEL.** (4 cr; prereq 8 cr of literature) Owens  
Important technical aspects of the novel in relation to meaning.
- 5443, 5444. ENGLISH NOVEL.** (4 cr each; prereq 8 cr of literature) Owens  
Development of the British novel. 5443: Defoe to Dickens. 5444: George Eliot to present.
- 5452. AMERICAN NOVEL.** (5 cr; prereq 8 cr of literature) Hart  
History of the American novel in its relations to patterns of American thought.

## Course Listings

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- 5471. HEMINGWAY AND FAULKNER.** (4 cr; prereq 8 cr of literature) Hart  
Literary development and analysis of selected works.
- 5523. MEDIEVAL LITERATURE II.** (4 cr) Jankofsky  
General readings in Middle English literature and detailed study of selected works exclusive of Chaucer.
- 5533. 16TH-CENTURY ENGLISH LITERATURE II.** (4 cr; prereq 8 cr of literature; offered when feasible) Levang  
Readings in the works of the period, excluding Shakespeare's drama.
- 5543. 17TH-CENTURY ENGLISH LITERATURE II.** (4 cr; prereq 8 cr of literature) Duncan  
Readings in the period, excluding Milton.
- 5553. 18TH-CENTURY ENGLISH LITERATURE II.** (4 cr; prereq 8 cr of literature) Owens  
English life and letters from 1700 to 1798.
- 5565. ROMANTIC PROSE AND POETRY II.** (4 cr; prereq 8 cr of literature) Tezla  
English literature, 1790-1830.
- 5566. VICTORIAN PROSE AND POETRY II.** (4 cr; prereq 8 cr of literature) Crockett  
English literature, 1830-1901.
- 5571. EMERSON, THOREAU, WHITMAN.** (4 cr; prereq 8 cr of literature) Glick  
Literary development and analysis of selected works.
- 5572. HAWTHORNE, MELVILLE, TWAIN.** (4 cr; prereq 8 cr of literature) Glick  
Literary development and analysis of selected works.
- 5575. BLACK AMERICAN LITERATURE.** (4 cr) Hart  
Notable Black authors from the 18th century to the present.
- 5581. MODERN BRITISH POETRY AND CRITICISM.** (4 cr; prereq 8 cr of literature) Duncan  
British poetry and criticism from 1900 to the present. Yeats, Eliot, Richards, Leavis, Auden, Dylan Thomas, Philip Larkin, John Wain, and others.
- 5590. INDEPENDENT READING.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and  $\Delta$ )  
Students choose their readings in conference with their instructor.
- 5592. WORKSHOP: (Various Titles To Be Assigned).** (1-6 cr each offering [no more than a total of 6 cr can be applied to a master's degree program]; prereq #; offered when feasible)  
Opportunities for students to concentrate on special skills and areas of knowledge.
- 5593. SPECIAL TOPICS.** (2-6 cr [may be repeated for a max of 10 cr]; primarily for majors, minors, and grad students; offered when feasible)  
Intensive study of special topics falling outside the usual English courses. Topic to be announced prior to offering the course.
- 5611. LITERARY CRITICISM.** (4 cr; prereq #; offered when feasible)  
Reading and analysis of selected critical writings from Aristotle to Arnold.
- 5671. MODERN AMERICAN LITERARY CRITICISM.** (4 cr; prereq 8 cr of literature or #; offered when feasible)  
Hart  
Readings in the principal schools of modern American criticism, together with some application of their chief critical tenets to selected literary works.
- 5711. ORAL INTERPRETATION OF LITERATURE.** (4 cr; prereq 1906 or #)  
Theory and practice of the oral performance of principal literature genres.
- 5811. INTRODUCTION TO MODERN ENGLISH.** (4 cr) Hols  
Modern theories of English grammar.
- 5821. HISTORY OF THE ENGLISH LANGUAGE.** (4 cr)  
History of sounds, word stock, and structures of the English language from the earliest records to the present time.
- 5831. SOCIOLINGUISTICS.** (4 cr; offered when feasible) Hols  
Communicative behavior in social groups, especially the conventions of dialects and stylistic variation, linguistic interference, and paralinguistic behavior of dominant cultures and subcultures.
- 5841. PRACTICAL CLASSROOM LINGUISTICS.** (4 cr; for secondary teachers of English; prereq course in linguistic theory or #) Hols  
The application of modern theories of linguistics to the teaching of grammar, composition, and literature.
- 5851. PRACTICUM IN TEACHING LINGUISTICS.** (2 cr; prereq 8 cr of linguistics and  $\Delta$ ) Hols  
Supervised teaching in introductory linguistics courses. Experience in preparation for and in conduct of classes, in consultations with students and in testing.
- 5902. COMPOSITION FOR TEACHERS.** (4 cr, §3902)  
A course involving both practice in composition and the study of the theory and practice of teaching composition in elementary and secondary schools.

- 5910. BIBLIOGRAPHY AND LITERARY RESEARCH.** (2 cr; prereq #; offered when feasible)  
Basic library reference works, scholarly and critical journals, bibliographies of periods and prominent literary figures; exercises and problems in methods and exposition of research.
- 5912. GROUP APPROACHES IN LANGUAGE ARTS.** (4 cr; 1 hr per wk practicum) Bacig  
Methods of using small group techniques, role playing, sociodrama, games and simulations in teaching the language arts.
- 5913. CONTEMPORARY APPROACHES TO COMPOSITION THEORY.** (4 cr; prereq 8 cr in linguistics or in English exclusive of Freshman Composition; offered when feasible)  
Composition process from the points of view of traditional rhetoric, communications theory, and discourse theory. Emphasis on materials developed since 1965.
- 5930. METHODS, PRACTICUM IN TESL.** (4 cr; prereq 8 cr in linguistics, or 12 cr in language, or 12 cr in English exclusive of Freshman Composition, or #)  
Methods of, and practice in, teaching English as a second language.
- 8530. GRADUATE SEMINAR.** (4 cr [may be repeated for cr])
- 8902. TEACHING COLLEGE COMPOSITION.** (4 cr; required for tchg assts in English Dept; prereq #)  
A course in methods, materials, and objectives of college composition, including practice in writing, teaching writing, and evaluating writing.
- 8903. DIRECTED RESEARCH IN COMPOSITION.** (1-4 cr [may be repeated for a max of 4 cr]; prereq 8902 and #)  
Controlled research in methods, materials, and theories (both linguistic and rhetorical) used in composition classes, sometimes involving experiments with composition students in secondary schools and colleges.
- 8910. PRACTICUM IN TEACHING COMPOSITION.** (4 cr; prereq Δ)  
Teaching, tutoring, and assisting in Freshman Composition courses, experience in the preparation of materials, microteaching, and grading student work.
- 8930. PRACTICUM IN TEACHING LITERATURE.** (4 cr; prereq 8 cr of literature and Δ)  
Teaching in sophomore literature courses; experience in preparation of supplementary materials, consultation with students, and assisting instructors in grading student work.

## FINE ARTS (FA)

## (SFA)

Courses in the fine arts are intended to acquaint the student with the interdisciplinary relationships of the areas of art, dance, music, theatre, and the humanities.

- 1004. UNDERSTANDING THE ARTS.** (3 cr, \$Hum 1004, \$Hum 1101; offered summer only)  
Painting, sculpture, and architecture; development and relationships from Egyptian period to Renaissance.
- 1005. UNDERSTANDING THE ARTS.** (3 cr, \$Hum 1005, \$Hum 1102; offered summer only)  
Painting, sculpture, and music; development and relationships from Renaissance period to 20th century.
- 1006. ARTS IN THE 20TH CENTURY.** (3 cr, \$Hum 1006, \$Hum 1103; offered summery only)  
Architecture, painting, sculpture, and music in their relationship to contemporary life.
- 1007. ARTS IN AMERICA.** (3 cr, \$Hum 1007)  
Architecture, painting, sculpture, and music in the United States from the colonial period to the present.
- 1101, 1102, 1103. SURVEY OF THE ARTS.** (4 cr each, \$Hum 1101, 1102, 1103; prereq soph)  
Rise and development of the graphic and plastic arts, architecture, and music; influence of the sociological factors in molding the philosophy and aesthetic components. 1101: Egyptian period through Gothic. 1102: Renaissance period through 18th century. 1103: The 19th and 20th centuries.
- 1201. ADVENTURES IN THE ARTS.** (3 cr)  
Experiential exploration of dance, theatre, music, and visual arts with an emphasis on principles and concepts shared among the arts.
- 1300. INTERDISCIPLINARY WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering; prereq #)  
Exposure to a variety of performing activities within the School of Fine Arts.
- 3101. JAZZ STUDIES.** (4 cr, \$Hum 3101)  
Exploring the evolution of this art form through its foremost creators, with examination of the social problems in America that fostered its origin and shaped its development.
- 5300. INTERDISCIPLINARY WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr; no more than a total of 6 cr can be applied to an MA or MEd degree program]; prereq #)  
A graduate-level research approach to various performing activities within the School of Fine Arts.



# FRENCH (Fr)

(Foreign Languages and Literatures Department)

- 1101-1102-1103. BEGINNING FRENCH I-II-III.** (5 cr each)  
Grammar; reading; conversation.
- 1111-1112. BEGINNING FRENCH.** (8 cr first term, 7 cr second term; offered summer only)  
Grammar; reading; conversation. Covers the same material handled in the regular first-year sequence.
- 1171-1172. READING FRENCH.** (3 cr each; not open to students with more than 10 previous cr in French; offered when feasible)  
Designed to enable students to acquire a reading knowledge of French in 2 quarters.
- 1201-1202-1203. INTERMEDIATE FRENCH.** (3 cr each; prereq 1103)  
Review of grammar. Improvement of proficiency in language skills.
- 1211-1212. INTERMEDIATE FRENCH.** (5 cr first term, 4 cr second term; offered summer only)  
Review of grammar. Improvement of proficiency skills. Covers the same material handled in the regular intermediate sequence.
- 3121-3122-3123. ADVANCED FRENCH.** (4 cr each; prereq 1203)  
Composition; conversation; grammar; reading.
- 3152. PHONOLOGY, MORPHOLOGY, AND SYNTAX.** (4 cr; offered alt yrs)  
Applied French linguistics for the learner and teacher.
- 3304. FRENCH CIVILIZATION.** (4 cr; offered alt yrs)  
Major developments in French culture. Taught in English.
- 3305. FRANCE TODAY.** (4 cr; prereq 1203; offered alt yrs)  
French society, institutions, mentalities, daily life, popular culture. A comparative approach.
- 3505. FRENCH POETRY.** (4 cr; prereq 1203; offered alt yrs)
- 3511. LITERATURE IN TRANSLATION.** (4 cr; students may substitute Engl 3511, Ger 3511, or Span 3511 for Fr 3511 in selecting electives)  
Reading of French literature in translation.
- 3532. 17TH-CENTURY LITERATURE.** (4 cr; prereq 3121; offered alt yrs)
- 3543. VOLTAIRE AND ROUSSEAU IN ENGLISH.** (4 cr; offered alt yrs)
- 3544. 18TH-CENTURY FRENCH PROSE.** (4 cr; prereq 3121; offered alt yrs)
- 3573. 20TH-CENTURY NOVEL.** (4 cr; prereq 1203; offered alt yrs)
- 3574. 20TH-CENTURY THEATRE.** (4 cr; prereq 1203; offered alt yrs)
- 3997. SEMINAR.** (4 cr [may be repeated for a max of 8 cr]; prereq 1203 and #)
- 5552. THE 19TH-CENTURY NOVEL.** (4 cr; prereq 3123 and #; offered alt yrs) Jenny
- Lang 0001. TRAVELER'S FRENCH/GERMAN/SPANISH.** (No cr)  
Basic pronunciation, reading of signs, and drill of everyday phrases.
- Lang 3010. DIRECTED STUDY.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and Δ)  
Students plan their program of study in conference with their instructor in an area not already covered by regular courses.
- Lang 3611. THEATRE PRACTICUM.** (2 cr; prereq Th 1110, Th 1500 and Th 3221; to be taken concurrently with Th 3661)  
The production of one-act plays in foreign language before an invited audience.
- Lang 3801. TEACHING NONNATIVE LANGUAGE.** (4 cr; prereq 24 cr of French or #)  
The theory and practice of teaching basic nonnative language skills and cultural concepts at any educational level. Applicable also to teachers of English as a foreign language.
- Lang 5100. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 12 cr]; prereq tchg credentials in a foreign language or #; offered when feasible)  
A service course for prospective and in-service teachers providing for postgraduate study of any matters related to the teaching of a foreign language.
- Lang 5890. PROJECTS IN LANGUAGE EDUCATION.** (1-8 cr [may be repeated for a max of 12 cr]; prereq #, tchg credentials in a foreign language)  
Readings, research, materials development, classroom application, etc., that serve to enhance the teaching of a foreign language. The projects may encompass objectives, methodology, evaluation, as well as language skills and culture.

# GEOGRAPHY (Geog)

(CLS)

1201. **MAN AND HIS HABITAT.** (4 cr)  
The geography of human groups in diverse physical settings. Description and analysis of favorable and unfavorable habitats for human occupation including geographic analysis of selected countries. Emphasis on our use and misuse of the environment.
1303. **CULTURAL GEOGRAPHY.** (4 cr)  
Principles of human geography including a treatment of the world's livelihood patterns, population characteristics, and settlement types.
1305. **ENVIRONMENTAL CONSERVATION.** (4 cr)  
Natural resources of the earth and our cultural modification of them. Emphasis on planning for and control of our use of the environment.
1312. **ECONOMIC GEOGRAPHY.** (4 cr, §3323, §3324)  
Introductory survey and analysis of world patterns of economic activity. Emphasis on spatial variation of mining, manufacturing, agriculture, forestry, fishing, and transportation.
1403. **PHYSICAL GEOGRAPHY.** (4 cr)  
Earth-sun relations, maps and globes, and major factors of the natural environment including water resources, landforms, weather and climate, natural vegetation, and soils.
1600. **FIELD GEOGRAPHY: (Various Titles To Be Assigned).** (1-9 cr; prereq #)  
Opportunities for undergraduate students and special students to concentrate on the geographical problems of an area at close range.
3103. **HISTORICAL GEOGRAPHY: UNITED STATES.** (4 cr; prereq 4 cr in geography or #)  
Geographic conditions influential in the development and settlement of the United States.
3111. **GEOGRAPHY OF MINNESOTA.** (3 cr; prereq 1403)  
Physical survey followed by study of human activities.
3323. **AGRICULTURAL GEOGRAPHY.** (4 cr; prereq 1312 and 1403)  
Analysis of (a) types of farming including products, methods, tenure, disposal of products, requirements; (b) types of farming regions including location, settlement patterns, similarities, differences; and (c) production and trade of major products.
3324. **GEOGRAPHY OF INDUSTRIAL LOCATION.** (4 cr; prereq 1303 and 1312)  
Locational analysis of industry and industrial patterns. Introduction to spatial theory and model building with emphasis on integrating real world phenomena with theoretical industrial location factors.
3331. **URBAN GEOGRAPHY.** (3 cr; prereq 1303 and 1403)  
Function and distribution of cities in present-day world, including analysis of their development. Emphasis on American cities, their internal structure, form, and planning processes.
3341. **GEOGRAPHY OF TRANSPORTATION AND TRADE.** (4 cr; prereq 3323 or 3324 or #)  
Large- and small-scale analysis of the distribution and pattern of various transport modes with examination of the geographical aspects of transportation systems at empirical and theoretical levels. Study of spatial variations in international trade linkages and flows and the distribution centers that service this trade.
3392. **POLITICAL GEOGRAPHY.** (4 cr; prereq 1303 and 1403)  
World states and geographical interpretation of international relations; current world problem areas and the influence of geographic settings upon them.
3412. **WEATHER ELEMENTS.** (4 cr; prereq 1403 or #)  
Topics include atmospheric composition, structure, stability, and motion; precipitation processes, air masses, fronts, cyclones, and anticyclones; general weather patterns.
3422. **CLIMATOLOGY.** (2 cr; prereq 1403 and 3412 or #)  
Various climatic classifications; analysis of climatic regions of continents based on the Trewartha (modified Koppen) system. Individual student projects.
3522. **INTRODUCTORY CARTOGRAPHY.** (4 cr, §3521; prereq 1403 and #; 1 hr lect, 6 hrs lab)  
Drafting and lettering techniques; portrayal of curved surface on a flat surface; compilation of data; symbolization; and the conceptual planning, layout, design, and execution of maps.
3531. **ADVANCED CARTOGRAPHY.** (4 cr; prereq 1403, 3522, and #; 1 hr lect, 6 hrs lab)  
Compilation of data, and design and production of more complex maps. Application of statistical techniques in mapping geographic phenomena.
3541. **COMPUTER CARTOGRAPHY.** (4 cr; prereq 1403, 3522, and #; 2 hrs lect, 4 hrs lab)  
Surface theory; surface processing; representation of surfaces, lines, and points; data structures; and applications of computer cartography.

## Course Listings

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- 3552. MAP AND AIR PHOTO INTERPRETATION.** (4 cr; prereq 1303 and 1403 and #; 3 hrs lect, 2 hrs lab)  
The development of topographic and national surveys. Use of maps, charts, and aerial photos as tools in geographic research and teaching. Identification, interpretation, classification, and mapping of cultural and physical data through use of aerial photographic techniques. Interpretation and analysis of interrelationships as shown on maps and aerial photos.
- 3571. MAPS AND GLOBES FOR TEACHERS.** (1 cr; prereq 1303 and 1403; offered when feasible)  
Study of wall maps and globes. Strongly recommended for B.A.A. geography majors and minors.
- 3591. QUANTITATIVE METHODS IN GEOGRAPHY.** (4 cr; prereq 1303, 1312 and 1403 or #)  
An introduction to the use of elementary quantitative techniques in geographic analysis, organization of spatial data, mathematical and statistical methods, and the use of modern technology in storing and manipulating data. Examples will be chosen from the geographical literature employing quantitative methods on data commonly used by geographers.
- 3611. FIELD TECHNIQUES.** (4 cr; open only to jrs and srs; prereq 16 cr in geography or #)  
A geographic survey of physical and cultural aspects of selected urban and rural landscapes; including basic methods of observation, measurement, recording, analysis, and presentation of field data. Training will be carried on chiefly in the field.
- 3802. GEOGRAPHIC THOUGHT.** (4 cr; prereq 16 cr in geography)  
Emphasis given to the development of geographic thought, introducing the student to the fundamental concepts of geography.
- 3920. SPECIAL PROBLEMS.** (1-3 cr [may be repeated for a max of 6 cr]; prereq #)  
For students interested in doing advanced work in selected fields of geography.
- 3930. SPECIAL TOPICS IN GEOGRAPHY.** (3 cr [may be repeated for a max of 12 cr]; prereq #)  
Topics in geography of current and special interest to students that are not offered in the regular departmental curriculum. They may involve specialties of the departmental staff or of a visiting professor.
- 5116. ANGLO-AMERICA.** (5 cr; prereq 1303 and 1403 or #) Hoag  
Topical study and regional presentation of physical and human geographic patterns of United States and Canada.
- 5133. LATIN AMERICA.** (5 cr; prereq 8 cr in geography or #) Adams  
Survey of the cultural and physical diversities of Latin America. Emphasis on physical resources, historical development, population characteristics, and economic activities.
- 5172. WESTERN AND CENTRAL EUROPE.** (4 cr; prereq 8 cr in geography or #) Chamberlin, Witzig  
Physical and cultural geography of the countries of Western and Central Europe considered regionally and through a more detailed discussion of topics related to these countries.
- 5174. MEDITERRANEAN.** (3 cr; prereq 8 cr in geography or #) Witzig  
Physical and cultural geography of lands of Mediterranean basin and Balkan peninsula considered regionally and by individual countries.
- 5182. SOVIET UNION.** (4 cr; prereq 8 cr in geography or #) Chamberlin  
Character of and bases for the regional diversity of physical resources, population, agriculture, manufacturing, and transportation in the U.S.S.R.
- 5201. GEOGRAPHY OF SOUTHEAST ASIA.** (4 cr; prereq 8 cr in geography or #) Levine  
A topical approach to the cultural and physical geography of Malaysia, Singapore, Indonesia, Thailand, Burma, the Philippines, Laos, Vietnam, and Cambodia, with emphasis on the problems of land use, transportation, resource development, and spatial and political fragmentation.
- 5211. GEOGRAPHY OF EAST ASIA.** (4 cr; prereq 8 cr in geography or #) Levine  
China, Japan, and Korea as a geographic problem; physical, cultural, and political bases of traditional East Asia with analysis of contemporary agriculture, population and its growth, resource utilization and industrialization, transport, trade, and urbanization. Special emphasis on communist China.
- 5222. AUSTRALIA AND NEW ZEALAND.** (4 cr; prereq 1303 and 1403 or #; offered when feasible)  
Geographical survey of physical and human resources of Australia and New Zealand.
- 5401. ETHNIC GEOGRAPHY OF AMERICAN IMMIGRATION.** (3 cr; prereq 8 cr in geography or #) Kaups  
A geographical survey of the origins and distribution of European immigration in the United States; theories relating to migration and location of immigrants; transplanted systems of cultural ecology and the American environment; ethnicity as a geographic expression. Local and regional case studies.
- 5500. WORKSHOP: (Various Titles To Be Assigned).** (1-9 cr [no more than 6 cr may be used in a Graduate School master's program]; prereq #)  
Opportunities for in-service teachers, other special interest groups, or general interest groups to concentrate on some problem of common interest and concern.
- 5573. GEOGRAPHY OF NORDEN.** (4 cr; prereq 8 cr in geography or #) Kaups  
Cultural and physical geography of Norden, and introduction to Scandinavian, Finnish, and Icelandic settlements in North America.



- 5600. FIELD GEOGRAPHY: (Various Titles To Be Assigned).** (1-9 cr [no more than 6 cr may be used in a Graduate School master's program]; prereq #)  
Opportunities for advanced undergraduate, graduate, and special students to concentrate on some area of common interest and concern.
- 5701. SETTLEMENT GEOGRAPHY.** (4 cr; prereq 8 cr in geography or #) Kaups  
A cultural geographic approach to study of nonurban settlements; including location, function, and development of settlement types, and theories of settlement. Selected regions of the world.
- 5920. SPECIAL PROBLEMS IN GEOGRAPHY.** (1-4 cr [may be repeated for a max of 9 cr]; prereq postbaccalaureate student and #)  
Independent problems for postbaccalaureate students interested in doing additional work in selected fields in geography.

## GEOLOGY (Geol)

## (CLS)

- 1100. TOPICS IN GEOLOGY.** (1 cr [may be repeated for a max of 6 cr]; 2 hrs lect-rec; 5 wks)  
Specific topics of general interest selected for a greater in-depth study at a beginning level than can be accomplished in Geol 1110 (Introductory Geology). Current topics include: the great ice age, continental drift, history of life, limits of earth resources, national parks, geology and religion, bedrock geology of Minnesota.
- 1110. INTRODUCTORY GEOLOGY.** (5 cr; 4 hrs lect, 2 hrs lab)  
A comprehensive survey of the planet earth including its composition, structure and dynamics; an understanding of both internal and surface processes is developed and related to theories of sea-floor and continental movement, the whole serving as a framework for a summary of geological history and the development of life.
- 3100. GEOLOGICAL FIELD METHODS.** (3 cr; prereq 3312, 3511) Ojakangas  
Introduction to and use of plane table and alidade, Brunton compass, and other field instruments; study of topographic maps, geologic maps, and aerial photographs; procedures for note-taking, construction of geologic maps, and preparation of geologic reports.
- 3120. GEOLOGY OF NORTH AMERICA.** (3 cr; prereq 1110)  
Survey of the major physiographic and tectonic provinces of North America, including their geological nature, origin, and history.
- 3131. OCEANOGRAPHY.** (4 cr, §3130; 3 hrs lect) Darby  
The physicochemical nature of marine waters; origin and history of oceans and basins; processes, currents, tides; ocean and continental relations, sedimentation in oceans, development of oceans, development of ocean floor topography; nature of marine organisms, productivity, trophic levels, ecosystems, ocean resources. Term paper.
- 3150. ENVIRONMENTAL GEOLOGY.** (4 cr; prereq 1110 or #) Green  
The interactions between human beings and their physical environment; the restraints and influences on human activities imposed by geologic processes, history, and the constitution of the earth. Engineering-geological strategies for dealing with some of these problems. Field investigation of an environmentally relevant local geologic problem.
- 3180. SEMINAR.** (1 cr; open only to geology or earth science majors; prereq #)  
Oral and written presentations on topics of current significance to geoscientists. Participation by department staff.
- 3200. GEOMORPHOLOGY.** (4 cr; prereq 1110; 3 hrs lect, 2 hrs lab) Matsch  
Geologic processes of the earth's surface environment that produce the major elements of the landscape. Aerial photographs and topographic maps as tools for interpreting the origin and geological history of landscapes. Field trips.
- 3310-3311-3312. EARTH MATERIALS I-II-III.** (5/4/4 cr; prereq 1110 and 1 yr high school chemistry or 1 qtr college chemistry; 3 hrs lect and 4 hrs lab for 3310...2 hrs lect and 4 hrs lab each for 3311 and 3312) Grant, Green, Ojakangas  
The study of the common and important rocks and minerals including their origin, composition, classification, identification, and use. 3310: Includes introduction to crystallography, crystal chemistry, and the use of the polarizing microscope. Field trips.
- 3510-3511. EARTH STRUCTURE I-II.** (4 cr each, prereq 3312, Math 1185; 3 hrs lect, 2 hrs lab) Davidson  
The structure of the earth with emphasis on the analysis of primary and secondary rock structures, geologic deformation and geotectonics. Laboratories utilize aerial photos, topographic and geologic maps, and computer analysis in interpreting earth history.
- 3600. ECONOMIC GEOLOGY.** (4 cr; prereq 3312; 3 hrs lect, 2 hrs lab) Marsden  
The geologic description, geographic distribution, and origin of economic mineral materials including petroleum, coal, and groundwater.

## Course Listings

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- 5010. ADVANCED EARTH SCIENCE FOR TEACHERS.** (3 cr; prereq earth science sr or grad, or #) Matsch  
The investigative approach to teaching earth science, including aspects of astronomy, meteorology, oceanography, and geology in preparation for secondary school teaching of modern earth science curricula. Field trips.
- 5020. ENVIRONMENTAL GEOLOGY OF MINNESOTA.** (5 cr; cr may not be applied toward master's degree in geology; prereq 1110 or #: offered summer only)  
Rocks, minerals, waters, landforms, geological history, and mineral resources—both developed and potential—of Minnesota. Technical, economic, and cultural aspects of the use and preservation of Minnesota's natural resources stressed. Laboratory includes a number of local field trips and one 2-day field trip to emphasize the geological history of Minnesota and the significance of geology in land use and development, and environmental problems.
- 5021. MINERAL RESOURCES AND ENVIRONMENT.** (6 cr; prereq 1110 or #: not usable toward MS degree in geology; offered summer only) Marsden  
Geological, technical, environmental, economic and land use aspects of developed and potential mineral resources of Minnesota. Field trips to operating mines, research centers, and mineral resource areas.
- 5100. FIELD GEOLOGY.** (9 cr or cr ar; students must have health insurance; prereq 3100, 3312 and  $\Delta$ ; held at Wasatch-Uinta Field Camp, Park City, Utah; 6 wks) Grant  
Measurement of stratigraphic sections; field study of fossils and igneous, sedimentary, and metamorphic rocks. Geological mapping on aerial photographs and topographic maps. Preparation of geologic maps and cross sections. Study of structural and geomorphic features and geologic setting of mineral deposits.
- 5142. SEDIMENTATION.** (4 cr; prereq 3312 or #: 2 hrs lect, 3 hrs lab) Darby  
Principles and procedures in the study of clastic sedimentary rocks; environments and mechanics of transport and deposition, emphasis on stream hydraulics. Laboratory includes analytical techniques for sediments and the interpretation of data, construction of subsurface maps and interpretation of well logs. Term paper.
- 5150. PRECAMBRIAN GEOLOGY.** (4 cr; prereq 3510 or #) Davidson  
Nature, distribution, origin, correlation, and special problems of the Precambrian with emphasis on the Lake Superior region. Field trips and term paper.
- 5180. SEMINAR: PRECAMBRIAN GEOLOGY.** (1-3 cr [may be repeated for a max of 6 cr]; prereq #)
- 5181. SEMINAR: STRATIGRAPHY-SEDIMENTATION.** (1-2 cr [may be repeated for a max of 4 cr]; prereq #)  
Darby, Ojakangas
- 5182. SEMINAR: IGNEOUS PETROLOGY.** (1 to 2 cr [may be repeated for a max of 4 cr]; prereq #) Green
- 5183. SEMINAR: METAMORPHIC PETROLOGY.** (1 to 2 cr [may be repeated for a max of 4 cr]; prereq #) Grant
- 5184. SEMINAR: SEDIMENTARY PETROLOGY.** (1 to 2 cr [may be repeated for a max of 4 cr]; prereq #)  
Ojakangas
- 5185. SEMINAR: PALEONTOLOGY.** (1 to 2 cr [may be repeated for a max of 4 cr]; prereq #) Darby
- 5186. SEMINAR: ECONOMIC GEOLOGY.** (1 to 2 cr [may be repeated for a max of 4 cr]; prereq #) Marsden
- 5190. GEOLOGIC PROBLEMS.** (1-2 cr; prereq #)  
Individual research in laboratory or field problems.
- 5211. GLACIAL AND QUATERNARY GEOLOGY.** (4 cr; prereq 1110 or #: 3 hrs lect, 2 hrs field lab) Matsch  
Physics of glaciers (glaciology), including their erosional and depositional activities. Survey of geological and biological responses to the changing environment resulting from climatic fluctuations during the last 3 million years of earth history. Field studies on the glacial deposits of Minnesota.
- 5280. SEMINAR: GEOMORPHOLOGY-GLACIAL.** (2 cr; prereq 3200 and 5211 or #) Matsch  
Selected topics in geomorphology, glaciology, and the Quaternary geology of North America, with special emphasis given to the quantitative aspects of recent research in these fields.
- 5305. OPTICAL MINERALOGY.** (4 cr; prereq 3312 or #: 2 hrs lect, 6 hrs lab) Grant  
Study and identification of crystalline substances using the polarizing microscope and immersion mounts, thin sections and polished sections.
- 5320. INTRODUCTION TO THEORETICAL PETROLOGY.** (3 cr; prereq Math 1296, Chem 1112 or #: 3 hrs lect)  
Grant  
Basic thermodynamics pertinent to petrologic problems; graphical representation of phase equilibria; introduction to diffusion and heat flow.
- 5330. PETROLOGY OF IGNEOUS ROCKS.** (4 cr; prereq 3312, 5305 and 5320 or #: 2 hrs lect, 4 hrs lab) Green  
Survey of major igneous rock-forming minerals and important igneous rock types; physical chemistry of magmatic systems; genesis and differentiation of magmas; problems in theoretical igneous petrology; laboratory study of volcanic and plutonic rock associations.
- 5340. PETROLOGY OF METAMORPHIC ROCKS.** (4 cr; prereq 3312, 5305 and 5320 and #: 2 hrs lect, 4 hrs lab)  
Grant

Observation, theory, and experimental data in the interpretation of textures and mineral assemblages of metamorphic rocks.

- 5350. PETROLOGY OF SEDIMENTARY ROCKS.** (4 cr; prereq 3312, 5305 and #; 2 hrs lect, 4 hrs lab) Ojakangas  
Provenance, associations, and classifications of sedimentary rocks, including sandstones, carbonates, muddy rocks, and others. Microscopic study of thin sections and grain mounts; statistical techniques. Interpretation of rock suites. Term paper. Field trip.
- 5400. INTRODUCTORY GEOCHEMISTRY.** (3 cr; prereq 1110, Chem 1112, Math 1296 or #) Grant  
Geochronology; application of physical chemistry to the evolution of the earth; solution geochemistry.
- 5510. ADVANCED STRUCTURAL ANALYSIS.** (4 cr; prereq 3511, Phys 1107, Math 1297, Math 1501 or #; offered when feasible) Davidson  
The theory of rock deformation, stress-strain theory applications; computerized model and tectonite analysis.
- 5581. GEOTECTONICS.** (2 cr; prereq 3511 or #) Davidson  
The study of the distribution, origin, and geophysical parameters of major earth structures as related to the new global tectonics.
- 5610. ORE DEPOSITS.** (4 cr; prereq 3511, Chem 1112, Math 1185 or #; 3 hrs lect, 2 hrs lab) Marsden  
The distribution, nature, tectonic setting, and origin of ore deposits.
- 5611. GEOLOGY OF IRON ORES.** (2 cr; prereq 5610 or #; offered when feasible) Marsden  
Nature, distribution, and origin of iron ores, stressing Precambrian iron ores. Term paper.
- 5620. INDUSTRIAL MINERALS AND FUELS.** (3 cr; prereq 3511 or #; offered 1977-78 and alt yrs) Marsden  
Origin, distribution, and nature of industrial mineral deposits, petroleum, and coal.
- 5630. ECONOMIC ASPECTS OF GEOLOGY.** (2 cr; prereq 3600 or #) Marsden  
Political, economic, and environmental factors influencing the mineral industries. Term paper.
- 5700. PALEONTOLOGY.** (5 cr; prereq 1110 or #; 3 hrs lect, 4 hrs lab) Darby  
Study of invertebrate animals as fossils. The morphology, taxonomy, and ecology of important micro and macro invertebrate fossil groups; comparison of living and extinct forms; stratigraphic occurrences; geological time ranges; index fossils of North America.
- 5802. APPLIED GEOPHYSICS.** (4 cr, \$5800, \$5801; prereq 3510 or equiv or #, Math 1297, Phys 1107; 3 hrs lect, 3 hrs lab) Davidson  
An introduction to the principal methods of geophysics including seismic, gravity, electrical, electromagnetic, and magnetic. The application of geophysical prospecting programs to particular geological environments will be emphasized. Laboratory will treat instrumental methods, data reduction and interpretation, as well as survey procedures for each of the major geophysical methods. Field surveys will be conducted as equipment and weather permit.
- 8180. SEMINAR.** (1-3 cr)  
Oral and written presentations on topics of current significance to geoscientists. Participation by department staff.
- 8190. GEOLOGIC RESEARCH.** (Cr ar; prereq #)

## GERMAN (Ger)

(CLS)

(Foreign Languages and Literatures Department)

- 1101-1102-1103. BEGINNING GERMAN I-II-III.** (5 cr each)  
Grammar; reading; conversation.
- 1111-1112. BEGINNING GERMAN.** (8 cr first term, 7 cr second term; offered summer only)  
Grammar; reading; conversation. Covers the same material handled in the regular first-year sequence.
- 1201-1202-1203. INTERMEDIATE GERMAN.** (3 cr each; prereq 1103)  
Review of grammar. Improvement of proficiency in language skills.
- 1211-1212. INTERMEDIATE GERMAN.** (5 cr first term, 4 cr second term; offered summer only)  
Review of grammar. Improvement of proficiency skills. Covers the same material handled in the regular intermediate sequence.
- 3121-3122-3123. ADVANCED GERMAN.** (4 cr each; prereq 1203)  
Composition; conversation; grammar; reading.
- 3171. READINGS IN SCIENTIFIC GERMAN.** (5 cr; prereq 1102, jr; offered when feasible)  
Readings in the physical and natural sciences.
- 3304. DEUTSCHE KULTURKUNDE.** (4 cr; prereq 1203; offered alt yrs)  
Civilization and culture of the German speaking countries until 1945.



## Course Listings

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- 3305. DEUTSCHLAND HEUTE.** (4 cr; prereq 1203; offered alt yrs)  
Civilization and culture of the German speaking countries since 1945.
- 3505. GERMAN POETRY.** (4 cr; prereq 1203; offered alt yrs)
- 3506. GERMAN DRAMA.** (4 cr; prereq 1203; offered alt yrs)  
Selected dramas from the classical period to the present.
- 3511. LITERATURE IN TRANSLATION.** (4 cr; students may substitute Engl 3511, Fr 3511, or Span 3511 for Ger 3511 in selecting electives)  
Reading of German literature in translation.
- 3542. GERMAN CLASSICISM.** (4 cr; prereq 1203; offered alt yrs)
- 3553. THE GERMAN ROMANTICS.** (4 cr; prereq 1203; offered alt yrs)  
Representative authors of the romantic period.
- 3554. THE GERMAN NOVELLE.** (4 cr; prereq 1203; offered alt yrs)
- 3573. 20TH-CENTURY LITERATURE.** (4 cr; prereq 1203; offered when feasible)  
Representative authors of the 20th century.
- 3997. SEMINAR.** (4 cr per qtr [may be repeated for a max of 8 cr]; prereq 1203 and #)
- 5542. GOETHE IN TRANSLATION.** (4 cr; offered alt yrs) Viksna  
Reading and analysis of Goethe's major works. Poems from early and middle periods, *The Sufferings of Young Werther*, *Faust* or *Elective Affinities* depending on the student's preparation.
- 5574. LITERATURE SINCE 1945.** (4 cr; offered alt yrs) O'Brien  
Reading and analysis of German literature since 1945 with emphasis on the novel. Knowledge of German not required.
- Lang 0001. TRAVELER'S FRENCH/GERMAN/SPANISH.** (No cr)  
Basic pronunciation, reading of signs, and drill of everyday phrases.
- Lang 3010. DIRECTED STUDY.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and Δ)  
Students plan their program of study in conference with their instructor in an area not already covered by regular courses.
- Lang 3611. THEATRE PRACTICUM.** (2 cr; prereq Th 1110, Th 1500 and Th 3221; to be taken concurrently with Th 3661)  
The production of one-act plays in foreign language before an invited audience.
- Lang 3801. TEACHING NONNATIVE LANGUAGE.** (4 cr; prereq 24 cr of German or #)  
The theory and practice of teaching basic nonnative language skills and cultural concepts at any educational level. Applicable also to teachers of English as a foreign language.
- Lang 5100. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 12 cr]; prereq tchg credentials in a foreign language or #; offered when feasible)  
A service course for prospective and in-service teachers providing for postgraduate study of any matters related to the teaching of a foreign language.
- Lang 5890. PROJECTS IN LANGUAGE EDUCATION.** (1-8 cr [may be repeated for a max of 12 cr]; prereq #, tchg credentials in a foreign language)  
Readings, research, materials development, classroom application, etc., that serve to enhance the teaching of a foreign language. The projects may encompass objectives, methodology, evaluation, as well as language skills and culture.

## HEALTH (Hlth)

(CE)

- 1101. PERSONAL HEALTH.** (2 cr)  
Health problems of young adults; factors and conditions that affect personal health status and the efficiency of the individual and family.
- 1102. HEALTH CARE OF THE FAMILY.** (2 cr)  
Procedures and techniques applicable to care of the sick in the home; meets requirement for Red Cross Nursing Certification.
- 1103. TOPICS: (Various Topics To Be Assigned).** (1 to 3 cr each offering [may be repeated for a max of 4 cr]; prereq #)  
Geared toward both the major and the nonmajor, this course will concentrate study on various health-related problem areas with an emphasis on facilitating positive attitudinal and behavioral changes within the students.
- 1600. STANDARD FIRST AID.** (2 cr, \$1500)  
Procedures and techniques of first aid and accident prevention to develop a student's first aid knowledge, skill ability, and personal judgment; leads to the American Red Cross Standard First Aid Certificate.

1700. **ADVANCED FIRST AID.** (3 cr; prereq current Standard First Aid Certificate)  
Principles of advanced first aid and accident prevention in the home and community; leads to the American Red Cross Advanced First Aid Certificate.
3101. **PERSONAL AND COMMUNITY HEALTH.** (3 cr)  
Personal and family health in relation to the community. Community programs for the promotion of health or control of communicable diseases.
3102. **COMMUNITY HEALTH PROBLEMS.** (2 cr; prereq 3101 or #)  
A view of the current health problems facing the community and a study of the roles played by governmental health agencies and organizations in combating the community's health-related problems.
3103. **READINGS IN HEALTH.** (2-4 cr; prereq 3322 and #)  
Special complementary work and investigation in student's field of interest; coordination of staff and available resources for the school health program.
3115. **CONSUMER HEALTH EDUCATION.** (3 cr; prereq 3101, 3102 or #)  
An overall study of consumer health education, consumer protection, safety standards in regard to the consumer and quackery.
3116. **DISEASES OF MAN.** (3 cr; prereq 3101, Biol 1001, Biol 1102, or #)  
An in-depth study of selected communicable and noncommunicable disease problems affecting morbidity and mortality in the United States. Students will explore principles and methods of epidemiological analysis.
3322. **CONCEPTS IN HEALTH EDUCATION.** (5 cr; prereq 1101 or 3101)  
Basic functions of the school health program; curriculum suggestions on elementary and secondary levels; teaching methods and materials; unit planning; evaluation of program.
3323. **ORGANIZATION, ADMINISTRATION OF SCHOOL HEALTH.** (3 cr; prereq 3322 or #)  
Problems of organization and administration of the school health program including coordination of the school program with the community programs, curriculum development and evaluation of the total school health program.
3400. **STRATEGIES FOR HEALTH INSTRUCTION.** (3 cr)  
Various teaching methods for health educators will be explored in this course. Selecting content, stating goals and objectives, and developing learning opportunities for health instruction. Competency-based health education and evaluation of health instruction will be reviewed.
3700. **WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunity for interested students to concentrate study on various health-related curricular and instructional topics.
3900. **INDEPENDENT STUDY.** (1-6 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunity for upper division students to undertake an independent project that would serve to further their knowledge base and/or professional competencies.
5140. **ADMINISTRATION OF THE PROGRAM.** (3 cr; prereq 1101 or 3101 and #)  
Health education in public elementary and secondary schools; special reference to curriculum construction, health supervision, and guidance; relationships between public schools and governmental health organizations and agencies; evaluation; assistance in solution of individual professional problems.
5172. **READINGS IN HEALTH.** (1-4 cr [may be repeated for a max of 4 cr]; prereq #)  
Special complementary readings and discussion in a student's main area of interest in the health field.
5200. **HEALTH SERVICES ADMINISTRATION.** (3 cr; prereq #)  
An examination of administrative factors related to health services. Administrative and professional authority, boards, consumers, delivery of services, federal role, cost effectiveness and health planning will be emphasized.
5300. **ADVANCED INSTRUCTION—SECONDARY.** (3 cr; prereq #)  
Instructional and individual problems.
5400. **HEALTH PLANNING.** (3 cr; prereq #)  
Primary examination of health planning processes, principles, and concepts. Methods for health planning, functions, goals, and authority of health planning agencies, issues in comprehensive health planning and analysis of decision-making steps for program implementation.
5700. **WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunity for interested students to concentrate study on various health-related curricular and instructional topics.
5901. **SPECIAL TOPICS: (Various Topics To Be Assigned).** (1 to 3 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Geared toward the graduate student, this course will concentrate study on various health-related problem areas with an emphasis on facilitating positive attitudinal and behavioral changes within the student.

- 8171. INDEPENDENT STUDY.** (1-6 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunity for graduate students to undertake an independent project that would serve to further their knowledge base and/or professional competencies.

## HISTORY (Hist)

## (CLS)

- 1011. TOPICS IN HISTORY.** (4 cr; offered when feasible)  
A classroom course treating historical subjects not included in the regular curriculum.
- 1054, 1055, 1056. ANCIENT CIVILIZATION.** (4 cr each)  
1054: The Tigris-Euphrates civilization; Egypt; Assyria; the Persian Empire. 1055: Early Cretan civilization; prehistoric Greece and Greek civilization during the 5th century; Alexander the Great. 1056: The Etruscans and early Rome; Roman Republic; the Roman Empire to A.D. 476.
- 1154, 1155. ENGLISH HISTORY.** (5 cr each)  
1154: Medieval and Renaissance England to 1603. 1155: Modern Britain and British Empire.
- 1204, 1205, 1206. INTRODUCTION TO MODERN EUROPE.** (4 cr each)  
1204: Considers the transition from the Middle Ages, and deals with such representative individuals as Petrarch, Machiavelli, Luther, Calvin, Elizabeth I, Cromwell, Richelieu, and Louis XIV. 1205: The focus here is on revolution—political, economic, and social. Consideration is given to Adam Smith, Robespierre, Napoleon, Metternich, Marx and Engels. 1206: The major emphasis is on Europeans engaged in imperialism and warfare. The great revolution in Russia, and the dramatic developments in Germany, Italy, England, and France receive considerable attention.
- 1301, 1302, 1303. AMERICAN HISTORY.** (4 cr each)  
Political, economic, and social history of the United States. 1301: Colonial, Revolutionary, and early Republic to 1815. 1302: National development from 1815-1900. 1303: Since 1900.
- 1367. CIVIL RIGHTS MOVEMENTS, RECENT AMERICA.** (4 cr)  
A survey of the struggles by ethnic minorities to secure equal human rights in the United States since World War II, with emphasis upon Afro-American activities in the South.
- 3003. HISTORICAL RESEARCH.** (5 cr; required for all majors; to be completed at least 1 qtr before graduation)  
Laboratory course in historical method. Includes the writing of a research paper.
- 3005. ADVANCED TOPICS IN HISTORY.** (4 cr; offered when feasible)  
Upper division classroom course treating historical subjects not included in the regular curriculum.
- 3011. INDEPENDENT STUDY.** (3 cr; prereq 18 cr in history, by invitation and  $\Delta$ )  
Involves independent study and research in the student's major field of interest in history.
- 3103. HISTORY OF THE MIDDLE AGES.** (4 cr)  
Considers the political, social, and cultural developments in Europe from the Germanic invasion through the early 14th century. Special attention is given to the Church of Rome, Islamic influence in Europe, and such individuals as St. Augustine, Charlemagne, Thomas Aquinas, and Gregory the Great.
- 3164, 3165. ENGLISH CONSTITUTIONAL HISTORY.** (4 cr each; prereq 1154 or 1155 or #; offered 1978-79 and alt yrs)  
3164: Beginnings and growth of English government and law. 3165: Emergence of modern government, the English revolutions, democracy.
- 3216, 3217. THE EUROPEAN REVOLUTIONS 1774-1871.** (4 cr each; offered 1977-78 and alt yrs)  
3216: French Revolution, Napoleon, development of 19th-century liberalism and nationalism. 3217: Nationalism and revolution, rise of Germany, socialism, transformation of European culture.
- 3233. MODERN FRANCE.** (5 cr)  
History of France from 1814 to present.
- 3264, 3265. HISTORY OF RUSSIA.** (4 cr each; prereq 1204, 1205, 1206 or #)  
3264: Kiev to Alexander III. 3265: Alexander III to present.
- 3280. CHURCH AND STATE IN MODERN EUROPE.** (3 cr; offered when feasible)  
Principal movements in the history of church and state since the French Revolution.
- 3314, 3315. 19TH-CENTURY AMERICA.** (4 cr each)  
3314: Early national period, Jacksonian era, development of sectional controversy to 1860. 3315: Civil War, Reconstruction, late 19th century.
- 3326. MODERN AMERICAN REFORM MOVEMENTS.** (5 cr)  
Characteristics and results of major reform movements from Populism to the present. Heaviest emphasis on the Progressive movement and the New Deal.
- 3327. UNITED STATES AT WAR: 20TH CENTURY.** (5 cr)  
American participation in war from the Spanish-American War to the present. Impact of war on the nation. Heaviest emphasis on the two world wars.



- 3357. WOMEN IN AMERICAN HISTORY.** (4 cr)  
The role of women in American society from the colonial period to the present. Contributions of outstanding women.
- 3358, 3359. AMERICAN SOCIAL HISTORY.** (4 cr each)  
Values, manners, and way of life at all levels of American society. Currents of reform and reaction. 3358: Colonial period to 1900. 3359: Since 1900.
- 3361. THE AMERICAN CITY.** (4 cr)  
American urbanization from the colonial town to the modern metropolis, stressing social and cultural problems peculiar to cities, and the impact of the city on American civilization.
- 3366. AFRO-AMERICAN HISTORY.** (5 cr)  
Survey of the experience of Afro-Americans in the United States.
- 3374, 3375. GROWTH OF AMERICAN THOUGHT.** (4 cr each; offered 1978-79 and alt yrs)  
3374: From Puritanism to the antislavery crusade. 3375: From Darwinism to 20th-century thought.
- 3394, 3395. THE AMERICAN WEST.** (4 cr each, \$5894, \$5895, \$5896; prereq 1301, 1302, 1303 or #; offered 1977-78 and alt yrs)  
3394: From the exploration period to 1900. 3395: From 1900 to the present.
- 3404, 3405. HISTORY OF LATIN AMERICA.** (5 cr each)  
3404: Latin America during the colonial period to mid-19th century. 3405: Latin America from mid-19th century to present.
- 3457, 3458. FAR EAST.** (5 cr each)  
3457: Ancient times to 1842. 3458: 1842 to present.
- 5001-5002-5003. DIRECTED STUDY.** (3 cr each; prereq #)  
A proseminar course.
- 5124, 5125, 5126. RENAISSANCE AND REFORMATION.** (4 cr each; prereq 1204, 1205, 1206 or #; offered 1978-79 and alt yrs)  
5124: The Renaissance. 5125: The northern Renaissance and Reformation to 1530. 5126: The Reformation after 1530.
- 5225, 5226, 5227. RECENT EUROPE.** (4 cr each; prereq 1204, 1205, 1206 or #) Morris  
5225: Effect of industrialism, liberalism, imperialism, and nationalism on European nation states from 1870 to 1905. 5226: Background and significance of World War I. 5227: The interwar years; World War II to present.
- 5350, 5351. MINNESOTA AND THE UPPER MIDWEST.** (4 cr each, \$5891, \$5892, \$5893; prereq 1301, 1302, 1303 or #; offered 1978-79 and alt yrs)  
5350: From the exploration period to 1900. 5351: From 1900 to the present.
- 5376, 5377. THE AMERICAN SOUTH.** (4 cr each; prereq 1301, 1302, 1303) Fischer  
5376: To 1877. 5377: To the present.
- 5384, 5385. AMERICAN FOREIGN RELATIONS.** (4 cr each; prereq 1301, 1302, 1303)  
5384: Revolution to 1898. 5385: From 1898 to present.
- 5814, 5815. PROSEMINAR: 19TH-CENTURY AMERICA.** (4 cr each; prereq #)  
Extensive reading and discussion on selected topics in American life, thought, and politics during the nineteenth century.
- 5821, 5822, 5823. PROSEMINAR: 20TH-CENTURY AMERICA.** (3 cr each; prereq #)  
Intensive seminar treatment of selected topics in twentieth-century history of the United States. Research paper.
- 8001. HISTORICAL BIBLIOGRAPHY AND CRITICISM.** (3 cr; required of candidates for the MA degree in history who do not present evidence of similar training elsewhere) Storch
- 8002. SEMINAR: TEACHING HISTORY I.** (1 cr; prereq Δ)  
Methods, materials, and objectives in teaching history. Required for teaching assistants in the Department of History. Suitable for other graduate students planning to teach in the field.
- 8003. SEMINAR: TEACHING HISTORY II.** (1 to 3 cr; prereq 8002 or concurrent enrollment in 8002)  
Advanced projects in materials and methods used in teaching history.
- 8850. SEMINAR: MINNESOTA AND THE UPPER MIDWEST.** (4 cr, \$8891, \$8892, \$8893; prereq #; offered 1978-79 and alt yrs)  
Selected topics in the history of Minnesota and the Upper Midwest.
- 8860. SEMINAR: AMERICAN SOCIAL HISTORY.** (4 cr; prereq #)  
Topics in American social history from the colonial period to the present. Special emphasis on women and the urban experience.

## HOME ECONOMICS (HE)

(CE)

- 1001. HOME ECONOMICS AS A PROFESSION.** (1 cr)  
Orientation to the field of home economics. Exploration of careers. Historical beginnings to the present.
- 1006. BASIC CLOTHING CONSTRUCTION.** (4 cr; 2 hrs lect, 4 hrs lab)  
Fabric and pattern selection; care and use of laboratory equipment; basic construction skills; fitting and alteration of ready-to-wear. For students who have not already developed basic clothing construction skills.
- 1055. INTRODUCTION TO TEXTILE FABRICS.** (4 cr; prereq Chem 1103 or Chem 1110 or ¶Chem 1103 or ¶Chem 1110; 3 hrs lect, 2 hrs lab)  
Physical and chemical properties of fibers, yarns, fabrics and finishes; their effects on performance, care, and maintenance of clothing and household fabrics.
- 1445. FOOD SELECTION AND PREPARATION.** (5 cr; prereq Chem 1104 or Chem 1111; 2 hrs lect, 6 hrs lab)  
Scientific principles applied to the technical and manipulative aspects of food preparation; evaluation of food products. Selection of raw and processed food.
- 1470. SURVEY OF HUMAN NUTRITION.** (3 cr)  
A survey of the nutrients with emphasis on the foundation of a balanced diet required for physical well-being.
- 1500. INTRODUCTION TO FURNISHINGS.** (4 cr; prereq Art 1002 or Art 1011 or #; 2 hrs lect, 4 hrs lab)  
Aesthetic, economic, and social problems involved in selection and arrangement of furnishings in the home. Consumer aspects emphasized.
- 1560. INTRODUCTION TO HOUSING.** (4 cr; 2 hrs lect, 4 hrs lab)  
The physical, social, economic, and environmental aspects of choosing and maintaining a home.
- 1610. THE DEVELOPING CHILD.** (4 cr; prereq Psy 1003, Soc 1100 or Soc 1400)  
A developmental study of the child in a family setting from conception through age 6.
- 1611. CHILD DEVELOPMENT FIELD EXPERIENCE.** (1-2 cr; prereq 1610 or ¶1610 and #; 2 hrs observation-participation per cr)  
A supervised laboratory experience with an agency or learning center for children.
- 1655. DYNAMICS OF FAMILY LIVING.** (3 cr; prereq Psy 1003, Soc 1100 or Soc 1400)  
Dynamics of social-psychological forces affecting family interaction, parent-child relationships, and varying family life-styles.
- 3005. FAMILY CLOTHING.** (3 cr)  
Clothing plan for a family; production, consumption, and economics of clothing; recent developments in choice of clothing for specific uses; historical, psychological, and sociological aspects of clothing.
- 3012. ADVANCED CLOTHING CONSTRUCTION.** (4 cr, §1012; prereq 1006 and 1055 or #; 2 hrs lect, 6 hrs lab)  
Elements of design as applied to clothing, personalized pattern development; individualized exploration of varied couture techniques, haute couture tailoring.
- 3016. CLOTHING DESIGN.** (3 cr; prereq Art 1002, Art 1012; 6 hrs lect-lab-dem)  
Advanced clothing construction projects including tailoring; advanced flat pattern design; half-scale draping.
- 3402. MEAL MANAGEMENT.** (4 cr; prereq 1445, 3546 or #; 1 hr lect, 6 hrs lab)  
Planning, preparation, and service of meals; emphasis on management of money, time, energy, and aesthetic aspects. Legislation relating to protection of the food consumer.
- 3425. QUANTITY FOODS.** (4 cr; prereq 3402 or #; 1 hr lect, 3 hrs lab, 3 hrs ar)  
Principles and equipment used in food preparation for groups of 50 or over. Practical experience in institutional food service.
- 3432. TRENDS IN FOODS.** (3 cr; 2 hrs lect, 2 hrs lab)  
Comparative use and cost of convenience foods; survey of the literature; class projects with emphasis on recent technological developments.
- 3481. ADVANCED HUMAN NUTRITION.** (3 cr; prereq 1470, Chem 1104 or Chem 1111, Biol 1042 or #)  
The nutritive processes; digestion, absorption, and metabolism. Nutritional aspects of human body systems.
- 3505. INTERIOR DESIGN.** (3 cr; prereq 1055 and 1500 or #; 6 hrs lect-lab)  
Advanced problems in planning and furnishing interiors for specific living needs. Aesthetic, economic, and social aspects emphasized.
- 3546. EQUIPMENT IN THE HOME.** (3 cr; prereq soph; 2 hrs lect, 2 hrs lab)  
Principles of selection, operation, care, and convenient arrangement of equipment in the home.

- 3575. COMMUNITY HOUSING.** (3 cr; prereq Soc 1100 or Soc 1400; 2 hrs lect, 2 hrs lab)  
Historic, economic, sociological, and psychological aspects of housing; government involvement in housing.
- 3675. MARITAL INTERACTION.** (3 cr; prereq Soc 1100 or Soc 1400)  
Application of principles from the behavioral sciences to marital roles, adjustments, communication and satisfaction.
- 3735. HOME MANAGEMENT, CONSUMER PROBLEMS.** (5 cr; prereq sr major or #; 4 hrs lect, 2 hrs ar)  
Principles relating to management within the home, the use of human and nonhuman resources in achieving individual and family goals; consumer problems related to management and resources; supervised fieldwork with families.
- 3800. HOME ECONOMICS METHODS I.** (3 cr; prereq admission to secondary teacher education program and #)  
Home economics objectives; curriculum design; selection and production of teaching materials; evaluation techniques.
- 3861. HOME ECONOMICS METHODS II.** (5 cr; prereq 3800 and #)  
Organization and administration of homemaking programs at the secondary level, including curriculum development, techniques of teaching, teaching materials, applied evaluation, observations.
- 3880. HOME ECONOMICS SEMINAR.** (1 cr; prereq sr)  
Assigned topics with special reference to current home economics problems.
- 3920. SELECTED STUDIES IN HOME ECONOMICS.** (3 cr [may be repeated for a max of 6 cr])  
Opportunity for students to pursue further study in some phase of home economics.
- 3950. INDEPENDENT STUDY IN HOME ECONOMICS.** (1-6 cr [may be repeated for a max of 9 cr]; prereq #)  
Individualized research or involvement in selected areas of home economics related to a candidate's special interest.
- 5025. HISTORY OF COSTUME.** (3 cr; history courses recommended; 3 hrs lect)  
Human apparel from ancient times to the present.
- 5450. TOPICS IN NUTRITION OR FOODS.** (1 to 4 cr [may be repeated for a max of 6 cr or two offerings]; prereq 1445, 3481 or #)  
Selected advanced topics in an area of nutrition or foods. Similar topics may not be repeated for credit. Topics announced prior to quarter offered.
- 5525. HISTORIC FURNISHINGS.** (3 cr)  
An historic study of American life-styles as seen through the homes, furniture, and decorative arts. The influence of selected countries and cultures throughout history on American homes and their furnishings.
- 5655. TOPICS IN FAMILY RELATIONSHIPS.** (4 cr [may be repeated for a max of 12 cr]; prereq 10 cr in sociology and/or psychology, sr or #)  
Seminar in a selected topic in the area of family or child development. Similar topics may not be repeated for credit. Topics to be announced prior to quarter offered.

## HOME ECONOMICS EDUCATION (HEEd) (CE)

- 5100. WORKSHOP: (Various Titles To Be Assigned).** (1 to 4 cr each offering; prereq tchg exper or #)  
Opportunities for in-service teachers to concentrate study on new materials and curriculum problems in various aspects of home economics.
- 5200. READINGS IN HOME ECONOMICS EDUCATION.** (1-4 cr [may be repeated for a max of 6 cr]; prereq tchg exper or  $\Delta$ )  
Independent study under tutorial guidance.
- 5210. TOPICS IN HOME ECONOMICS EDUCATION.** (1-4 cr [may be repeated for a max of 6 cr]; prereq tchg exper or  $\Delta$ )  
Independent projects under staff guidance.
- 5300. HOME ECONOMICS CURRICULUM.** (3 cr; prereq HE 3861, tchg exper or #; offered when feasible)  
Examination of research and literature; development of units of study and programs at the elementary and secondary levels; production and evaluation of materials.
- 5325. CONTINUING EDUCATION IN HOME ECONOMICS.** (3 cr; prereq sr or grad standing and #)  
Planning, presenting, and evaluating home economics programs for adults. Field experience in selected adult programs in the community. For teachers, extension workers, and others interested in leading adult or other out-of-school groups in both formal and informal situations.
- 5600. TEACHING FAMILY LIFE EDUCATION.** (3 cr; prereq tchg exper or #)  
Examination of new materials and methods for teaching family life; review of research and current literature regarding content; development and evaluation of curriculum plans.



## HUMANITIES (Hum)

(CLS)

- 1001, 1002, 1003. INTRODUCTION TO HUMANISM.** (3 cr each)  
Study of primary sources in humanism with emphasis on the Renaissance. 1001: The rebirth of classicism. 1002: The Renaissance man. 1003: The human-centered universe.
- 1021. CLASSICAL MYTHOLOGY.** (4 cr; offered when feasible)  
Readings in the myths of the Greeks and the Romans, with special attention to those that have influenced Western culture.
- 1022. THE BIBLE AS LITERATURE.** (4 cr)  
Readings from the Old and New Testaments and the Apocrypha.
- 1023. FOLKLORE.** (4 cr; offered when feasible)  
Reading of fairy tales, legends, and beast fables, with special attention to the archetypal forms that have influenced Western culture.
- 1031. AMERICAN COLONIAL HERITAGE.** (3 cr)  
Pervasive ideas and themes of the colonial past as evidenced in works of art, architecture, music, literature, theology, and politics, with emphasis on New England.
- 1032. AMERICAN FRONTIER HERITAGE.** (3 cr)  
The frontier experience examined in primary documents with emphasis on the development of the American character as shown in nineteenth-century popular arts, myth, literature, and historiography.
- 1033. AMERICAN ESTABLISHMENTS, MINORITIES.** (3 cr)  
Immigrant and ethnic experiences in twentieth century as depicted in prose, poetry, drama, and the arts; patterns of contemporary prestige and status.
- 3001. SPECIAL TOPICS IN HUMANITIES.** (3 cr [may be repeated for a max of 6 cr])  
Various topics to be assigned.
- 3003. SPECIAL TOPICS IN POPULAR CULTURE.** (3 cr [may be repeated for a max of 9 cr])  
An introduction to methods of studying mass-produced and mass-distributed arts. Comparisons with folk and sophisticated traditions. Specific course topics will be announced in *Class Schedule*.
- 3021. CLASSICAL CIVILIZATION AND ARCHAEOLOGY.** (4 cr)  
A view of the classical civilization of Greece and Rome from a study of what has come down to us primarily through archaeological remains.
- 3051. SCIENCE AND CIVILIZATION.** (4 cr)  
A nontechnical survey of critical periods and/or themes in the history of science and their interconnections with other cultural issues.
- 3071. AFRO-AMERICAN HERITAGE.** (3 cr)  
Comparative cultural study of black arts and artists in social context of twentieth-century Africa, West Indies, and the Americas.
- 3073. THE GREAT DEPRESSION AND THE ARTS.** (3 cr)  
The interaction of arts, economics, and politics in American literature, theatre, film, photography, painting, and music.
- 3091. PROJECT IN THE HUMANITIES.** (2 cr; offered every qtr, by arrangement)  
An original paper or project under the guidance of the humanities minor adviser.
- 5001. SPECIAL TOPICS IN HUMANITIES.** (1-4 cr [may be repeated for a max of 8 cr]; prereq #)  
Specific course topics will be announced in *Class Schedule*.
- 5090. HUMANITIES INSTRUCTIONAL METHODS.** (4 cr; prereq #) Schroeder  
Humanities curriculum development; instructional methods, and preparation of instructional materials.

## INDUSTRIAL AND TECHNICAL STUDIES (Ind)

(CE)

- 0900. INTRODUCTION TO INDUSTRIAL EDUCATION.** (No cr)  
An orientation and introduction to the Department of Industrial and Technical Studies.
- 1102. BASIC WOODWORKING TECHNOLOGY.** (4 cr; 8 hrs lect-lab)  
Introduction to wood product fabrication with emphasis on basic hand and machine tool principles and practices, safety, material selection, and project development.
- 1111. MACHINE WOOD PRODUCTION, MAINTENANCE.** (3 cr; prereq 1102; 6 hrs lect-lab)  
Theory and practice of woodworking machine safety, operation, production, and maintenance.
- 1131. FINISHING MATERIALS AND METHODS.** (3 cr; prereq 1102 or #; 6 hrs lect-lab)  
Methods of finishing and refinishing by hand and spray methods; application of natural and synthetic stains, fillers, sealers, and surface finishes; special finishes and applications for wood and metal.

- 1302. FUNDAMENTALS OF POWER.** (3 cr; 3 hrs lect)  
Introduction to the historical development and physical principles of power systems and components. Comparative study of external and internal combustion, including design characteristics of piston, rotary, and turbine units. Fundamental principles of energy transmission, control, and conversion. Emphasis is on power for transportation.
- 1310. SMALL GASOLINE ENGINES.** (2 cr; 4 hrs lect-lab)  
Reconditioning, tune-up, and safety procedures employed in the maintenance and operation of two- and four-cycle small engines.
- 1330. BASIC AERONAUTICS.** (3 cr; 4 hrs lect, 2 hrs lab; offered when feasible)  
Aerospace fundamentals in terms of current technology; industrial applications; basic aviation concepts.
- 1353. AUTOMOTIVE MECHANICS.** (4 cr; 2 hrs lect, 4 hrs lab)  
Internal combustion engine diagnosis and reconditioning; basic fuel, ignition, and drive circuits.
- 1402. CRAFTS.** (3 cr; 6 hrs lect-lab)  
Study of industrial-related crafts in terms of processes, aspects of design, and manipulative skills in areas of leather, metals, plastics, and wood.
- 1441. HOME MAINTENANCE.** (2 cr; 2 hrs lect, 2 hrs lab; offered when feasible)  
General interest course covering all areas of home maintenance and repair. Basic mechanics and theory of operation for appliances and tools. Provides background for home mechanics course as presently taught in public schools.
- 1501. BASIC DRAWING.** (4 cr; 1 hr lect, 6 hrs lab)  
Fundamental skills in use of instruments, orthographic projections, dimensioning, sectioning, and technical sketching.
- 1502. TECHNICAL BLUEPRINT READING.** (3 cr; 2 hrs lect, 2 hrs lab; may not be used to fulfill requirements for drafting concentration)  
Analysis of various types of technical drawings including conventions, symbols, types of projections, sections, dimensions, and production drawings.
- 1511. TECHNICAL DRAWING I.** (4 cr; prereq 1501; 1 hr lect, 6 hrs lab)  
Introduction to industrial drafting problems including sections, projections, dimensioning, and tolerances, design and working drawings.
- 1540. AMERICAN BUILDING.** (3 cr; 3 hrs lect; offered 1978-79 and alt yrs)  
A study of the historical influences, technological advances, and social issues that have influenced and shaped American building.
- 1541. ARCHITECTURAL BLUEPRINT READING.** (3 cr; 2 hrs lect, 2 hrs lab; may not be used to fulfill requirements for drafting concentration)  
Analysis of construction drawings including specifications, architectural, structural, and mechanical drawings.
- 1561. ARCHITECTURAL DRAWING I.** (5 cr; 2 hrs lect, 6 hrs lab)  
Drafting techniques, conventions, drawing types, and details of construction as applied to light construction.
- 1602. INTRODUCTION TO GRAPHIC ARTS.** (4 cr; 2 hrs lect, 4 hrs lab)  
Overview of the major printing processes. Lab experience in composition, design, presswork, screen process, and binding.
- 1611. PRINTING LAYOUT AND DESIGN.** (4 cr; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs)  
Introduction to principles of design. Creative problems in balance, proportion, harmony, size, color, typography, treatment of photos, paper selection, and special processes.
- 1620. BASIC PHOTO TECHNOLOGY.** (3 cr; 2 hrs lect, 2 hrs lab)  
Basic photographic principles. Lab experience in camera use, film and paper processing, contact and projection printing, mounting and finishing, and special techniques.
- 1631. SCREEN PROCESS PRINTING.** (4 cr; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs)  
Screen process printing utilizing various types of stencils. Special and experimental techniques used to print on a variety of materials.
- 1703. GENERAL METALS.** (3 cr; 1 hr lect, 4 hrs lab)  
Study of the basic tools, machines, metals, and processes common to the metal trades. Selected problems in sheet metal forging, heat treating, metal spinning, soldering, brazing, and testing of various metals.
- 1710. BASIC WELDING.** (3 cr; 2 hrs lect, 4 hrs lab)  
Basic principles and practices in oxyacetylene and electric arc welding of common metals. Identification, selection, preparation, testing, and checking of materials, electrodes, and weldments. Introduction to new techniques in welding.

## Course Listings

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- 1721. SHEET METAL.** (3 cr; 1 hr lect, 4 hrs lab)  
Pattern drafting and practical work in typical sheet metal problems; e.g., in heating and ventilating, laying out, cutting, forming, hemming, and soldering.
- 1740. BASIC MACHINE TOOL PRACTICE.** (4 cr; prereq 1703; 2 hrs lect, 4 hrs lab)  
Basic principles and practices of machine tool design, construction, and operation.
- 1805. FUNDAMENTALS OF DC ELECTRICITY.** (4 cr; 3 hrs lect, 2 hrs lab)  
Basic physical concepts of electricity, generation of DC current, conversion of electrical energy, DC network analysis, and DC meters.
- 1806. FUNDAMENTALS OF AC ELECTRICITY.** (4 cr; prereq 1805 or #; 3 hrs lect, 2 hrs lab)  
Principles of magnetism, electromagnetic induction, inductance, capacity, AC current characteristics, and vector analysis of RCL circuits.
- 1807. BASIC ELECTRONICS.** (2 cr; prereq 1805 or #; 2 hrs lect, 1 hr lab)  
Provides a light treatment of various topics in electronics that a student may encounter in teaching introductory electronics courses at a secondary level.
- 1910. APPLIED MATHEMATICS FOR TECHNICIANS.** (4 cr, \$Math 1110; prereq 1 yr algebra and 1 semester geometry in high school or #; 4 hrs lect, 1 hr exam or lab; offered when feasible)  
Stresses algebraic and trigonometric applications, and skills used in technical courses in the Department of Industrial and Technical Studies.
- 3113. FURNITURE DESIGN, CONSTRUCTION.** (5 cr; prereq 1111; 3 hrs lect, 7 hrs lab; offered when feasible)  
Furniture manufacturing principles and processes. Development of design and construction in wood and upholstery. Major project utilizes essentials of wood construction and knowledge of upholstery materials, techniques.
- 3121. BUILDING CONSTRUCTION.** (4 cr; prereq 1111; 2 hrs lect, 6 hrs lab)  
Home building practices, light construction, prefabrication methods, use of tools, safety, interior cabinet construction, finishing, building materials.
- 3140. WOOD IN INDUSTRY.** (3 cr; 2 hrs lect, 4 hrs lab; offered when feasible)  
Industrial application of wood and wood products. Present and future sources of lumber; processes and future trends.
- 3322. HYDRAULICS, PNEUMATICS, FLUIDICS.** (3 cr; prereq 1302 or #; 2 hrs lect, 2 hrs lab)  
Physical principles and the functional operation of components utilized in hydraulics and pneumatic circuits.
- 3323. POWER TRANSMISSIONS.** (2 cr; prereq 3322 or #; 1 hr lect, 2 hrs lab)  
The study of mechanical and fluid power transmissions, including the control mechanisms, involved in transmitting power from the prime mover to actuator.
- 3354. AUTOMOTIVE FUEL AND ELECTRICAL SYSTEMS.** (4 cr; prereq 1353 and 1805 or #; 2 hrs lect, 4 hrs lab)  
Study of automotive fuel and electric components and circuit design incorporated in the modern automobile. A study of emission control equipment included.
- 3356. AIR CONDITIONING.** (2 cr; 1 hr lect, 2 hrs lab)  
The study of components and circuits incorporated in refrigeration and air-conditioning systems.
- 3357. ENGINE MACHINING.** (4 cr; prereq 1353 and 3736 or #; 2 hrs lect, 4 hrs lab)  
Theory and application of tools, machines, and processes in the remanufacture of engines and components.
- 3421. PLASTICS.** (3 cr; 6 hrs lect-lab)  
A study of plastics in terms of history, properties, applications, and processes with practical application in casting, laminating, injection molding, vacuum forming, and hand lay-up of larger projects.
- 3512. TECHNICAL DRAWING II.** (4 cr; prereq 1511; 1 hr lect, 6 hrs lab; offered 1978-79 and alt yrs)  
Advanced problems in technical drawing: auxiliary drawings, revolutions, intersections, developments, graphs, and graphical analysis.
- 3515. TECHNICAL ILLUSTRATION.** (5 cr; prereq 3512; 3 hrs lect, 7 hrs lab)  
Development of skills and techniques related to the pictorial presentation and rendering of technical subjects.
- 3518. ELECTRONIC DRAFTING.** (4 cr; prereq 1501 or #; 2 hrs lect, 5 hrs lab)  
Basic techniques in drafting as applied to electronic design including instruments, graphic materials, symbols, and basic schematic circuit diagrams and production drawings.
- 3531. INDUSTRIAL DESIGN.** (2 cr, \$3530; 2 hrs lect)  
Analysis of the elements of contemporary design and their application to industrial products and projects.
- 3543. MATERIALS OF CONSTRUCTION.** (4 cr; 4 hrs lect)  
Physical and mechanical properties of basic building materials and their applications in contemporary construction.



- 3544. BUILDING ESTIMATING.** (4 cr; prereq 1561 or #; 2 hrs lect, 4 hrs lab; offered when feasible)  
Estimating costs of equipment, material, and labor for building construction.
- 3545. LIGHT CONSTRUCTION TECHNOLOGY.** (3 cr; 3 hrs lect)  
Selected topics pertaining to materials and systems used in contemporary residential and light construction including analysis of simple structures, physical and structural properties of basic construction materials, construction systems, codes and specifications.
- 3562. ARCHITECTURAL DRAWING II.** (5 cr; prereq 1561; 4 hrs lect, 6 hrs lab; offered alt yrs)  
Introduction to site analysis, residential planning and design, perspective drawing, and presentation techniques.
- 3610. OFFSET REPROGRAPHICS.** (2 cr; prereq typing skills)  
Study of procedures, basic skill development, and maintenance of offset reprographic equipment and processes. Designed to familiarize teachers and business office workers with offset reprographic processes that are rapidly developing into the chief means of duplication.
- 3621. PHOTO TECHNOLOGY II.** (3 cr; prereq 1620 or Art 1600; 3 hrs lect, 1 hr lab)  
Advanced topics in photography including color materials and processes, lighting techniques, exposure control, copying, and advanced print techniques.
- 3642. OFFSET LITHOGRAPHY.** (4 cr; prereq 1602; 2 hrs lect, 4 hrs lab; offered 1977-78 and alt yrs)  
Principles of offset lithography. Lab experience in planning, layout, composition, copy preparation, camera work, stripping, platemaking, and presswork.
- 3643. ADVANCED OFFSET LITHOGRAPHY.** (4 cr; prereq 3642; 2 hrs lect, 4 hrs lab; offered when feasible)  
Advanced work in offset printing including process color, keyline, register work, and operation and maintenance of larger presses.
- 3702. METAL FABRICATION.** (5 cr, \$3750; prereq 1703; 2 hrs lect, 6 hrs lab; offered when feasible)  
Study of principles, materials, methods, and efficiency of metals manufacturing. Emphasis on shaping and forming processes.
- 3711. COMBINATION WELDING TECHNIQUES.** (3 cr; prereq 1710; 2 hrs lect, 4 hrs lab; offered 1978-79 and alt yrs)  
Principles and practices in modern welding methods with emphasis on MIG, TIG, nonferrous, cast iron, pipe, tube, and difficult position welding. Special materials, equipment, and techniques.
- 3735. NC AND EDM MACHINING.** (4 cr; prereq 3736; 2 hrs lect, 4 hrs lab; offered when feasible)  
Intensive study of modern machine technology with emphasis on numerically controlled machines, electrical discharge machinery, tungsten carbide tooling, and other recent innovations.
- 3736. ADVANCED MACHINE TOOL PRACTICE.** (4 cr; prereq 1740; 2 hrs lect, 4 hrs lab)  
A continuation of Ind 1740 with emphasis on advanced machining and tooling operations. Introduction to new innovative machining processes and machinability variables.
- 3737. DIE DESIGN AND CONSTRUCTION.** (4 cr; prereq 1740, 3736; 2 hrs lect, 4 hrs lab)  
A study, with practical problems, in the design and construction of mass production tooling used in our industries of today.
- 3750. APPLIED PHYSICAL METALLURGY.** (2 cr; 1 hr lect, 2 hrs lab)  
Study of the physical properties of metal with emphasis on microstructure and its relationship to the heating treatment process.
- 3802. AC NETWORKS FOR ELECTRONICS.** (4 cr; prereq 1807 or #; 3 hrs lect, 2 hrs lab)  
RCL circuit analysis using the  $j$  operator, equivalent circuit transformations, series and parallel resonant circuits, coupling circuits, and filter circuits.
- 3824. SPECIAL APPLICATIONS IN ELECTRONIC DESIGN.** (5 cr; prereq 3825, 3835 or #; 5 hrs lect, 2 hrs lab; offered 1977-78 and alt yrs)  
Applications of solid state devices and electron tubes in television, industrial control systems, and instrumentation.
- 3825. ELECTRON TUBES.** (4 cr; prereq 1805 or #; 3 hrs lect, 2 hrs lab)  
Characteristics of electron tubes and their immediate circuit design.
- 3835. DESIGN WITH TRANSISTORS.** (4 cr; prereq 1805 or #; 3 hrs lect, 2 hrs lab)  
Theory of operation of diodes and transistors and the immediate circuitry associated with these devices using approximation methods and equivalent circuit parameters.
- 3836. SPECIAL SOLID STATE DEVICES.** (4 cr; prereq 3835 or #; 3 hrs lect, 2 hrs lab)  
Theory of operation of FETs, SCRs, unijunction transistors, LEDs, and other special devices and the immediate circuitry associated with these devices.
- 3837. SOLID STATE DESIGN APPLICATIONS.** (4 cr; prereq 3836 or #; 3 hrs lect, 2 hrs lab)  
The employment of solid state devices in various types of circuits (oscillators, audio and RF amplifiers, control circuits, digital circuits, etc.).

## Course Listings

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- 3840. LINEAR INTEGRATED CIRCUITS.** (4 cr; prereq 3835 or #; 3 hrs lect, 2 hrs lab)  
Electronic circuit design employing linear integrated circuits such as operational amplifiers, voltage regulators, phase locked loops, etc.
- 3852. INTRODUCTION TO COMPUTER DESIGN.** (4 cr; prereq 3835 or #; 3 hrs lect, 2 hrs lab)  
An introduction to the application of digital electronic circuits to computers, how computers perform calculations, and some basic principles of programming. This course is electronics oriented rather than programming oriented.
- 3901, 3902, 3903. INDUSTRIAL INTERNSHIP.** (3 cr each; open to jr and sr industrial education majors who have completed the industrial education basic core; offered through Continuing Education and Extension or summer only)  
The student will work 240 supervised clock hours per 3 credits in an approved and structured industrial setting. Performance appraisal as well as oral and written reports will be used for evaluation.
- 3920. EQUIPMENT AND FACILITY PLANNING.** (2 cr; prereq 9 cr in area of concentration or #)  
Shop standards, planning, equipment layout and specifications, tool and material storage, and shop safety standards.
- 3950. SAFETY EDUCATION.** (4 cr)  
A comprehensive approach to the problems of safety in the schools, homes, community, and occupational world; including attitude development, problem solving, and liability.
- 3951. INDUSTRIAL PRACTICES AND PROCESSES.** (3 cr)  
Industrial materials; manufacturing processes and current practices; industrial plants, plant organization, products, production methods, and product development.
- 3971. TRAINING PROGRAMS IN INDUSTRY.** (2 cr; offered when feasible)  
Study of industrial training methods including the conduct and development of industrial training programs; the industrial training director.
- 3975. INDUSTRIAL SUPERVISION.** (3 cr; prereq # or upper division standing)  
Fundamental elements of industrial supervision; human relations, communication, decision making, exercising authority, and performance evaluation; examination of industrial supervisory practices and factors pertinent to successful supervision.
- 3976. INDEPENDENT STUDY IN INDUSTRIAL EDUCATION.** (1-9 cr [may be repeated for a max of 9 cr]; prereq jr or sr and  $\Delta$ )  
Electronics, power, metals, design, drafting, graphic arts, woods, or professional studies. Individualized research or design in selected areas of interest related to the candidate's professional and/or technical concentration.
- 5305. CRITICAL INDUSTRIAL EDUCATION ISSUES.** (1 to 3 cr; prereq tchg exper or #)  
Identification, analysis, and discussion of current major problems in the field.
- 5306. SPECIAL TOPICS: (Various Topics To Be Assigned).** (1 to 6 cr [may be repeated for a max of 6 cr])  
Study of selected advanced topics in technical education. Similar topics may not be repeated for credit.
- 5575. ARCHITECTURAL PRESENTATIONS.** (4 cr; prereq tchg exper or #; 2 hrs lect, 4 hrs lab; offered through Continuing Education and Extension or summer only)  
Professional techniques in architectural perspective drawing, delineation, model construction, and presentations.
- 5890. SEMINAR: NEW ELECTRONIC DEVICES.** (3 to 6 cr; prereq 3835 or #; 3-6 hrs lect, 3-6 hrs lab; offered when feasible)  
Acquaints the student with the operation of new electronic devices and how they are incorporated in circuits.
- 5921. TEACHING VOCATIONAL SUBJECTS.** (3 cr)  
Conduct of school classes, methods of presentation; instructional aids; lesson plans, demonstrations; practice, assignments, evaluation, reports and records; general concepts and techniques of method utilized in laboratory situations.
- 5922. TESTS IN VOCATIONAL SUBJECTS.** (3 cr)  
Study and application of principles of evaluation to shop and drawing subjects.
- 5923. MANAGING MULTIPLE ACTIVITIES.** (3 cr; offered when feasible)  
Theory of multiple shop organization; current practice as to types of shops; equipment; instructional materials and procedures; pupil personnel plans.
- 5924. AUDIOVISUAL MATERIALS.** (3 cr,  $\$Educ$  5921; prereq 9 cr in education or #)  
Characteristics, advantages, limitations, and practical use of audiovisual materials of nonprojected and projected types; practice in the operation of audiovisual equipment.
- 5926. COORDINATION TECHNIQUES.** (3 cr; prereq 5928 or #)  
Coordination in trade schools, part-time programs, and cosmopolitan high schools; information, guidance, and training for coordinators.

- 5928. PHILOSOPHY AND PRACTICES OF VOCATIONAL EDUCATION.** (3 cr)  
Development and characteristics of vocational education; social and economic significance; the organizational structure of vocational education at the secondary and postsecondary levels; state and federal aid; teacher preparation.
- 5929. ANALYSIS AND COURSE ORGANIZATION.** (3 cr)  
Need for and types of instructional analysis; content of courses selected and arranged for common and special teaching situations; both general and vocational applications considered.
- 5930. ADMINISTRATION OF INDUSTRIAL EDUCATION.** (3 cr; prereq 5928 or #; offered when feasible)  
General and vocational phases; objectives, programs, and practices; laws, rulings, and standards for aid; significant literature.
- 5950. VOCATIONAL EDUCATION SURVEYS.** (3 cr; prereq grad or #; offered when feasible)  
Analysis of various surveys, need for survey findings and survey techniques; preparation of plans for making surveys; interpretation and use of findings.
- 5952. INDUSTRIAL EDUCATION WORKSHOP.** (1-6 cr [may be repeated for a max of 6 cr]; prereq tchg exper or #)  
Intensive study of problems in industrial education; areas of concentration will vary with each successive offering.
- 5953. CONFERENCE LEADING TECHNIQUES.** (3 cr; prereq #)  
Purposes, advantages, and limitations of conference method; instruction in techniques of conference; experience in planning, leading, and evaluating conferences and in writing summaries.
- 5955. INDEPENDENT STUDY.** (1-9 cr [may be repeated for a max of 9 cr]; prereq jr or sr or #)  
Individualized research or design in electronics, power, metals, design, drafting, graphic arts, woods, or professional studies related to the candidate's professional and/or technical concentration.
- 5956. VOCATIONAL GUIDANCE.** (3 cr; prereq 0900 and 5921 or #; offered when feasible)  
History of educational and vocational guidance movement; typical public school means and methods; types and uses of occupational information; duties of the teacher and counselor; organization and relationships.

## **INTERDISCIPLINARY STUDIES (IS)**

- 1002. VALUES IN HUMAN EXPERIENCE.** (4 cr; offered when feasible)  
The roles of values in human experience and behavior is examined from the viewpoint of three disciplines—philosophy, sociology-anthropology, and psychology. Problems of value acquisition, resolution of value conflicts, and theories of justification are given major consideration.
- 1100. INTRODUCTION TO THE SOVIET UNION.** (4 cr; not open to students who have had upper division courses on the Soviet Union)  
Survey of the basic elements of Soviet life: environmental setting and peoples; Marxist ideology; background to the 1917 Revolution; development of Soviet society and its politics; economic conditions; literature and cultural life; foreign policy and role in international communism.
- 1101. ENERGY: ITS SOURCES, USES, AND FUTURE.** (3 cr; 3 hrs lect)  
Survey of energy sources, their current use and misuse, their role in national and international economies and politics, and the future outlook for energy dependent societies.
- 1102. SPECIAL TOPICS.** (3 cr [may be repeated for a max of 6 cr])  
The special topic will be identified at the time the course is offered.
- 3050. SENIOR PROJECT.** (7-15 cr)  
Enrollment restricted to Interdisciplinary Studies majors. Amount of credit must be determined prior to enrollment in the course. Mandatory A-N grading. An independent study project which stresses the knowledge and skills acquired through course work as related to the unique objective of the major. Emphasis is placed on creativity and scholarship.
- 3100. MAN'S ENVIRONMENT AND HIS FUTURE.** (3 cr; 2 hrs lect, 1 hr discussion-rec)  
The relationship of human beings to the animate and inanimate world in and on which they live, the consequences to environment of their actions, the implications of various philosophical and economic principles for their future existence, and some of the possible choices they have for long-term survival on a world of finite resources. Several lectures; term paper; discussion groups.
- 3101. SPECIAL TOPICS.** (3 cr [may be repeated for a max of 6 cr]; prereq 12 cr in course work related to the special topic)  
The special topic will be identified at the time the course is offered.



## INTERNATIONAL STUDIES (IntS)

- 1101. INTERNATIONAL STUDY.** (1 to 5 cr [may be repeated simultaneously or sequentially for a max of 15 cr])  
For students who would like to undertake an independent study course while traveling or living in a foreign country. Course must be approved by the department head, the supervising faculty member, the student's adviser, and the director of the Office of Special Programs.
- 3100. INTERNATIONAL STUDY.** (1 to 5 cr [may be repeated simultaneously or sequentially for a max of 15 cr])  
For students who would like to undertake an independent study course while traveling or living in a foreign country. Course must be approved by the department head, the supervising faculty member, the student's adviser, and the director of the Office of Special Programs.

## JOURNALISM (Jour)

(CLS)

(English Department)

See Communications minor

- 1102. INTRODUCTION TO MASS COMMUNICATIONS.** (4 cr)  
A survey of contemporary mediums of communication, particularly newspapers, television, radio, and advertising, with emphasis upon the challenges they face and the criticisms they must bear. Role of the mass media in a democratic society compared with authoritarian press systems. A preview of sophisticated communication systems in various stages of development.
- 1105. REPORTING.** (4 cr; prereq Engl 1107 and typing skill of 25 wpm)  
Functions and responsibilities of communication agencies, examined from the point of view of the professional journalist. Laboratory exercises in journalistic writing and fact gathering.
- 3102. PUBLICATIONS EDITING.** (4 cr, §3302; prereq 3203)  
Lectures and laboratory in selection and editing of news-editorial content of newspapers and magazines. Newspaper makeup; magazine format.
- 3112. TELEVISION-RADIO NEWS WRITING.** (4 cr; prereq 1105 or #)  
Techniques of writing news for television and radio.
- 3120. PUBLIC RELATIONS.** (4 cr; prereq # for nonmajors and nonminors; offered when feasible)  
Historical development of public relations principles and practices, and practical application of those principles and practices. Critique of public relations in society.
- 3121. ETHICAL PROBLEMS IN JOURNALISM.** (4 cr)  
An investigation into contemporary problems created by the adversary relationship between journalists and several institutions within our society, particularly government. Definition of the role of the journalist in a free society.
- 3122. MASS COMMUNICATION LAW.** (4 cr, §1120; prereq 1105 or #)  
Basic law of defamation, contempt, privacy, obscenity, and other legal rules affecting journalistic practice.
- 3202. INTERPRETIVE REPORTING.** (4 cr; prereq 3203)  
Interpretive and investigative reporting. Advanced problems in material gathering and specialized reporting.
- 3203. PUBLIC AFFAIRS REPORTING.** (4 cr; prereq 1105 or #)  
Reporting and editing news of courts and municipal, county, and state agencies.
- 3402. HISTORY OF JOURNALISM.** (4 cr)  
Development of newspapers and periodicals from early beginnings in Europe to present day; rise of radio and television; relation of communications developments to political, economic, and social trends in the United States.
- 3412. RIGHTS, RESPONSIBILITIES OF MEDIA.** (4 cr; prereq jr)  
An examination of the history of freedom of expression in the United States through study of landmark court cases involving the First Amendment.
- 3502. INDEPENDENT STUDY.** (1-4 cr; prereq #)  
Projects for students interested in journalism and mass communications.

## LATIN (Lat)

(CLS)

(Foreign Languages and Literatures Department)

- 1101-1102-1103. BEGINNING LATIN I-II-III.** (5 cr each; offered when feasible)  
Elements of grammar and reading of selections of elementary Latin texts; i.e., Cornelius Nepos, De Bello Gallico.

**1201-1202-1203. INTERMEDIATE LATIN.** (3 cr each; prereq 1103; offered when feasible)  
Selected readings in classical authors and grammar review.

## LINGUISTICS (Ling)

(CLS)

- 3101. INTRODUCTION TO LINGUISTICS.** (4 cr)  
Fundamentals of linguistic science.
- 3590. INDEPENDENT STUDY IN LINGUISTICS.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and consent of coordinator)  
Directed reading and/or research in a topic in linguistics.
- 8590. INDEPENDENT STUDY IN LINGUISTICS.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and consent of coordinator)  
Directed reading and/or research in a topic in linguistics.

## MATHEMATICAL SCIENCES (Math)

(CLS)

- 1082. MATHEMATICS I, ELEMENTARY EDUCATION.** (5 cr, §1080; prereq elementary education major, 1 yr algebra)  
Subject matter background for effective teaching at the elementary school level. Emphasizes the structure of number systems.
- 1083. MATHEMATICS II, ELEMENTARY EDUCATION.** (3 cr, §1081; prereq elementary education major, 1080 or 1082 or  $\Delta$ )  
Continuation of subject matter for teaching at the elementary school level, with emphasis on geometry and algebra and an introduction to the use of electronic calculators and topics in computing.
- 1110. ELEMENTARY ALGEBRA.** (5 cr, §1153, §1185, §CLEP cr in the General Exam; students with 2 yrs or more of high school algebra may earn cr if work is of passing quality but no grades will be attached to these cr... others earn cr and grades as usual; prereq 1 yr of algebra)  
A course stressing basic manipulative skills and problem-solving techniques.
- 1156. FINITE MATHEMATICS.** (4 cr, §1155; prereq 1 yr high school algebra or equiv or #)  
Counting theorems, elementary probability, conditional probability, Bayes' theorem, matrices, determinants, graphical and algebraic methods of solving systems of linear equations and inequalities. This course is not recommended for students who plan to major in mathematics.
- 1160. CALCULUS, A SHORT COURSE.** (4 cr, §1154, §1296; prereq 1 yr high school algebra or equiv or #)  
An abbreviated treatment of calculus designed for students lacking preparation for or need for the fuller treatment given in the regular sequence of calculus courses. Stresses applications in business and in the social sciences. Not suitable for many preprofessional programs nor majors in mathematics.
- 1185. PRE-CALCULUS ANALYSIS.** (5 cr, §1160, §1296; prereq 2 yrs algebra and 1 yr plane geometry)  
Logic, elementary set theory, function concept, inequalities, theory of equations, trigonometric identities and equations, inverse functions, graphing.
- 1296-1297. CALCULUS I AND II.** (5 cr each, §1286-1287; prereq 1185 or 3½ yrs of high school mathematics or  $\Delta$ )  
A standard introduction to the calculus of functions of a single variable.
- 1501. FORTRAN PROGRAMMING.** (3 cr, §1154, §3501; prereq 1110 or 1 yr elementary algebra or #; 2 hrs lect, 2 hrs lab)  
A study of FORTRAN and preparation of elementary programs.
- 1550. WORKSHOP: (Various Titles To Be Assigned).** (1-9 cr; prereq #)  
Opportunities for teachers and other special interest groups to concentrate on some topic of common interest and concern.
- 1970. SPECIAL TOPICS.** (1 to 3 cr [may be repeated for a max of 6 cr]; prereq  $\Delta$ )  
A course of an unusual nature or fulfilling a special need to be arranged with the instructor and the head of the department.
- 3025. MATHEMATICS TUTORIAL PROJECT.** (0 to 2 cr [may be repeated for a max of 4 cr]; prereq 1296 and  $\Delta$ )  
Student tutorial project for 1- and 3-prefixed mathematics courses under the supervision of a member of the mathematics department.
- 3030. MATHEMATICS FOR LIBERAL EDUCATION.** (0 to 5 cr [depending on performance], §3240, §3670; not open to mathematics majors or minors)  
Course designed to help students develop an appreciation and understanding of the role of mathematics and of its relationship to the modern world.
- 3240. FUNDAMENTALS OF MATHEMATICS.** (2 cr, §3030, §3032; prereq mathematics majors or #)  
Introduction to the foundations, fundamental concepts, and history of mathematics.

## Course Listings

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- 3298. CALCULUS III.** (5 cr, §3288; prereq 1287 or 1297)  
Completion of the study begun in Math 1296 and 1297.
- 3320. VECTORS AND MATRICES.** (4 cr, §3282; prereq 1160 or 1185 or 1286 or 1296)  
The essentials of linear algebra required for advanced mathematics courses and for many fields of application presented in a form suitable for students of mathematics, the physical sciences, business, economics, and other social sciences.
- 3350. CALCULUS IV.** (5 cr; prereq core program in mathematics)  
Calculus of two and of several variables plus Green's, Stokes', and the divergence theorems.
- 3380. DIFFERENTIAL EQUATIONS I.** (5 cr; prereq core program in mathematics)  
Solutions of first order equations, linear equations of second and higher order, systems of equations, operator methods, series solutions, existence and uniqueness of solutions, and applications.
- 3441. CONTEMPORARY GEOMETRY.** (4 cr; prereq 3298)  
Foundations of Euclidean geometry, Euclid's parallel postulate and its implications. Absolute geometry. Non-Euclidean geometries of Lobachevsky and Riemann, their relative consistency with Euclidean geometry and their applicability to physical space. Abstract axiom systems and models.
- 3470. ADVANCED TOPICS FOR TEACHERS.** (3 cr; for BAS majors only; prereq core program in mathematics)  
Portions of geometry, algebra, trigonometry, and analytic geometry not yet studied by the prospective teacher; intended to deepen understanding of secondary school mathematics.
- 3505. COBOL PROGRAMMING.** (3 cr; prereq 1501 or  $\Delta$ ; 2 hrs lect, 2 hrs lab; may not be included as an elective for BA major in mathematics)  
A study of COBOL and preparation of elementary programs with applications to business.
- 3523. ASSEMBLY LANGUAGE PROGRAMMING.** (4 cr, §5521; prereq 3288 or 3298, 1501 or 3501 or #)  
Number representations, addressing, machine language and symbolic programming, computer arithmetic and logic.
- 3561. ELEMENTARY STATISTICS.** (4 cr, §3565, §5590; prereq 1 qtr college algebra or #)  
Descriptive techniques; elementary probability; statistical inference; normal, t, chi-square, and F distributions; regression and correlation.
- 3565. STATISTICS FOR THE SOCIAL SCIENCES.** (4 cr, §3561; prereq at least 1 yr of high school algebra)  
An introduction to descriptive and inferential statistics with emphasis on procedures used in the social sciences.
- 3589. INTRODUCTION TO PROBABILITY.** (3 cr; prereq 3298 and tchg exper. or  $\Delta$ ; offered when feasible)  
The axioms of probability. Discrete and continuous random variables and their probability distributions. Probability models for experiments, games, and some simple random processes.
- 3670. ABSTRACT ALGEBRA I.** (4 cr; prereq 3288 or 3298; majors needing this course should complete it before or during 1st qtr of jr yr)  
Introduction to algebraic systems including groups, rings, integral domains and fields, homomorphisms and isomorphisms; permutation groups and Cayley's theorem.
- 3699. INTERMEDIATE ANALYSIS.** (4 cr; prereq 3298)  
A careful study of fundamental notions such as limit, convergence, continuity, and differentiability on which all reflective study of the calculus must rest.
- 3931. PROJECT FOR MAJORS.** (1-3 cr; prereq  $\Delta$ )  
Each student majoring in mathematics is required to develop a project in mathematics under the supervision of a member of the department. This project can be a term paper, an oral report on independent study, or some other appropriate activity in mathematics.
- 3970. SPECIAL TOPICS.** (1 to 3 cr [may be repeated for a max of 6 cr]; prereq  $\Delta$ )  
Directed individual reading and/or research in mathematics to be arranged with the instructor and the head of the department before registration.
- 5326. LINEAR ALGEBRA.** (3 cr; prereq 3320 or #)  
A study of linear transformations and vector spaces including topics from orthogonality, canonical forms, bilinear forms, characteristic values and inner product spaces.
- 5385. DIFFERENTIAL EQUATIONS II.** (3 cr; prereq 3699; offered alt yrs)  
Uniqueness, comparison, separation, and existence theorems. Selected readings from the current literature, particularly in Sturmian theory.
- 5526. DATA STRUCTURES.** (3 cr; prereq 3523 or #; 3 hrs lect)  
Relations, graphs, trees, lists, queues, dequeues, program structure, organization, searching.
- 5530. NUMERICAL ANALYSIS.** (4 cr, §5519, §5523; prereq 1501 or equiv, 3298 or equiv, and 3380)  
Computer representation of numbers, unit roundoff, solution of nonlinear equations, polynomial interpolation, numerical integration and solution of differential equations.



- 5531. NUMERICAL LINEAR ALGEBRA.** (4 cr; §5524; prereq 3320, and 1501 or equiv)  
Solution of systems of linear equations. Pivoting and scaling. Error propagation. Iterative refinement of solutions. Orthogonal functions and least squares approximation.
- 5540. COMPARATIVE PROGRAMMING LANGUAGES.** (3 cr; §5527; prereq 3523 or #; offered when feasible)  
A survey of significant features of existing programming languages with emphasis on the concepts underlying these languages, and the implicit relationship between language source codes and their run time representations.
- 5541. COMPUTER SYSTEMS.** (3 cr; prereq 5526; offered when feasible)  
Uniform description of digital machines using vector Boolean algebra. Introduction to computer architecture; typical hardware devices and configurations. Operating systems; efficient use of processors, memory, I/O devices and files. Multiprogramming and multiprocessing. Scheduling, synchronization, reliability and security problems.
- 5550. WORKSHOP: (Various Titles To Be Assigned).** (1-9 cr [may be repeated for a max of 9 cr; no more than a total of 6 cr can be applied to a Graduate School program]; prereq #)  
Opportunities for teachers and other special interest groups to concentrate on some topic of common interest and concern.
- 5560. STATISTICAL METHODS FOR THE SOCIAL SCIENCES.** (5 cr; prereq 3561 or 3565 or Psy 3811 or #)  
An applied statistics course, designed for graduate students in the social sciences, including analysis of cross-tabulation tables, ANOVA, multiple regression, and factor analysis.
- 5590. MATHEMATICAL PROBABILITY.** (3 cr; prereq 3288 or 3298)  
Axiomatic development of probability; discrete, univariate and multivariate random variables with their probability distribution; moments and moment generating functions.
- 5591. STATISTICAL INFERENCE.** (3 cr; prereq 3350 and 5590)  
Sampling distributions, central limit theorem, principle of maximum likelihood, interval estimation and tests of hypotheses.
- 5598. STOCHASTIC PROCESSES.** (3 cr; prereq 3320, 5590 or 5591; offered when feasible)  
A study of Markov chains, random walks, compound distributions, Poisson process, birth-death processes, queues.
- 5671-5672. ABSTRACT ALGEBRA II AND III.** (3 cr each; prereq 3670)  
Theory of groups, rings, and fields, including the Sylow theorems and applications, isomorphism theorems, polynomial rings, extension fields, finite fields and an introduction to Galois theory.
- 5680. FINITE GROUPS.** (3 cr; prereq 3670; offered when feasible)  
A survey of the achievements in finite simple group theory from C. Jordan (1870) to J. Thompson (present). Topics discussed will include the Sylow theorems, permutation groups, classical linear groups, Burnside's theorem, the Feit-Thompson theorem, Thompson's N-theorem and 3' theorem and sporadic simple groups.
- 5701-5702. ADVANCED CALCULUS I AND II.** (3 cr each; prereq 3699)  
Sequences and series; limit superior, limit inferior, and an introduction to summability. Metric spaces; continuous functions on metric spaces, connectedness, completeness, and compactness. Sets of measure zero and the Riemann integral. Sequences and series of functions. Functions of several variables, partial differentiation, implicit functions, and integrals depending on a parameter.
- 5730-5731-5732. APPLIED MATHEMATICS I-II-III.** (3 cr each; prereq 3699 or #)  
Laplace transformation, vector analysis, line and surface integrals, inner product and orthogonal sequences, Sturm-Liouville equation, Fourier series, partial differential equations.
- 5760. GENERAL TOPOLOGY.** (3 cr; prereq 3699 or #; offered when feasible)  
Introduction to fundamentals of general topology basic to modern analysis. Set theory, Euclidean spaces, metric spaces, topological spaces, continuity, connectedness, compactness, product spaces, axiom of choice, generalized convergence.
- 5765. GRAPH THEORY.** (3 cr; prereq 3320; offered when feasible)  
A study of finite graphs and networks, directed and undirected, including such topics as connectivity, traversability, planarity, colorability, and matrix representations.
- 5820. COMPLEX VARIABLES.** (3 cr; prereq 3699 or #; offered when feasible)  
Complex numbers, derivatives, and integrals of analytic functions, elementary functions and their geometry. Cauchy's integral theorem and formula. Laurent expansions, evaluation of contour integrals by residues, fundamental theorem of algebra.
- 5830. THEORY OF NUMBERS.** (3 cr; prereq 3288 or 3298; offered when feasible)  
Elementary properties of integers; prime and composite numbers, Euclid's algorithm; congruences; the theorems of Fermat and Wilson; primitive roots; indices, Diophantine equations.
- 5840. SET THEORY.** (3 cr; prereq 3670 or #; offered when feasible)  
Logic, sets and set operations on a nonaxiomatic level, Cartesian products, relations, functions, ordinal and cardinal numbers, lattices and axiomatization of set theory including axiom of choice and several axiom systems.

- 5970. SPECIAL TOPICS.** (1-3 cr [may be repeated for a max of 6 cr]; prereq # and△; offered when feasible)  
Directed reading and/or research in mathematics.

## MEDICINE (Med)

(SM)

- 3998. TOPICS IN HUMAN BIOLOGY AND BEHAVIOR.** (Cr ar; prereq #) LaBree  
Designed to allow advanced undergraduate students to study in depth various aspects of normal human biology and behavior. Various topics will be offered during the academic year, and the student may elect to enroll in one or several subtopics of the following: gross anatomy, histology, developmental anatomy, neuroanatomy, biochemistry, microbiology, physiology, biometry and biostatistics, psychology, and sociology. No basic science clinical correlation will take place. Special examinations will be prepared for undergraduate students.

## MICROBIOLOGY (MicB)

(SM)

- 5201. MEDICAL BACTERIOLOGY.** (4 cr; prereq #; not open to med students) Hamilton, Ziegler  
The study of microbial organism-human interaction; pathogenesis; infectious organisms, emphasizing bacteria and their control of infectious immunity; antimicrobial, antibiotic and chemotherapy.
- 5202. MEDICAL VIROLOGY.** (1 cr; prereq #; not open to med students) Ziegler  
The study of basic animal virology followed by virus-human interactions; pathogenesis including immunity and control of human viral infections.
- 5553. PROBLEMS IN MEDICAL MICROBIOLOGY AND IMMUNOLOGY.** (1-5 cr [may be repeated for a max of 10 cr]; open to med students as an elective and to qualified upper division and grad students with #)  
Hamilton, Ziegler  
Independent study on tutorial basis. Emphasis on clinical microbiology in hospital diagnostic laboratories and teaching laboratories at the School of Medicine; clinical immunology including problems in human disease. Investigative work and appropriate reading will be arranged with tutorials consistent with interests and capabilities of individual students.
- 5558s. MICROBIAL CELL GENETICS.** (2-3 cr; prereq #; offered alt yrs) Ziegler  
Genetics of bacteria and their viruses including methods of genetic information exchange, genetic recombination, fine structure of genetic material, and regulation of DNA, RNA, and protein synthesis. Laboratory experiments illustrating various aspects of these subjects are included.
- 8554w. ADVANCED IMMUNOLOGY AND IMMUNOBIOLOGY.** (4 cr [may be taken for 3 cr by attending lect only]; prereq #) Hamilton, Lukasewycz  
Detailed study of mechanisms involved in immunologic defense as related to structure of lymphoid tissue; cellular interactions and consequences of immunologic interactions. Emphasis on concepts and current reading.
- 8555s,su. MEDICAL BACTERIOLOGY, PATHOBIOLOGY OF HOST REACTIONS.** (4-6 cr [may be repeated for a max of 9 cr]; prereq #) Hamilton  
Pathogenic bacteria and their host responses especially related to human beings and comparative host spectrum are studied from the standpoint of pathobiology. Emphasis on models of various mechanisms. Determinants of pathogenicity are discussed. Cell-wall defective bacteria are included, with microbial persistence and implications for antimicrobial problems. Pathobiological developments in compromised hosts will be stressed including immunosuppressed hosts with prolonged life but lowered capacity for immune surveillance.
- 8556w. ANIMAL VIROLOGY.** (4 cr; prereq #; offered alt yrs) Ziegler  
Fundamental virological techniques; comparison of biophysical and biochemical properties of bacteriophage, plant and animal viruses; viral replication and growth; and effects of viruses on host cells. Neurotrophic viruses and nerve tissue culture model are stressed.

## MUSIC (Mu)

(SFA)

### APPLIED MUSIC

- 0000. RECITAL ATTENDANCE.** (No cr; regis required each qtr for music majors and minors when enrolled in applied instruction)  
Attendance at scheduled musical events.
- 1311. VOICE.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.

- 1321. PIANO.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1331. ORGAN.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1341. HARPSICHORD.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1351. STRINGS.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1357. HARP.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1361. WOODWINDS.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1371. BRASS.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1381. PERCUSSION.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 1391. GUITAR.** (Cr ar [may be repeated]; prereq #)  
Individual or group lessons.
- 3300. RECITAL.** (1 cr; prereq △)  
Individual programs.
- 5311. VOICE.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5321. PIANO.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5331. ORGAN.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5341. HARPSICHORD.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5351. STRINGS.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5357. HARP.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5361. WOODWINDS.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5371. BRASS.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5381. PERCUSSION.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 5391. GUITAR.** (Cr ar [may be repeated]; prereq △)  
Individual or group lessons.
- 8333. GRADUATE APPLIED MUSIC.** (2 cr [may be repeated for a max of 12 cr]; prereq #)  
Individual lessons. Minimum of 12 hours of practice per week.

## ENSEMBLES

- 1501. CONCERT BAND.** (1 cr [may be repeated for a max of 12 cr])  
Field formations (first half of fall quarter); study and performance of transcribed and original concert literature. Selected instrumentation winter and spring.
- 1502. VARSITY BAND.** (1 cr [may be repeated for a max of 12 cr])  
The study and performance of concert band literature.
- 1503. JAZZ ENSEMBLE.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of stage band literature.
- 1510. ELIZABETHAN SINGERS.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of vocal chamber music.
- 1511. UNIVERSITY SINGERS.** (1 cr [may be repeated for a max of 12 cr]; prereq audition)  
Study and performance of sacred and secular literature from all periods by a selected group.



## Course Listings

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- 1512. UNIVERSITY CHORAL SOCIETY.** (1 cr [may be repeated for a max of 12 cr])  
Mixed chorus open to all students. Emphasis is on the appreciation and enjoyment of choral singing. The Choral Society may perform large works with instrumental ensembles, the University Singers, and guest soloists.
- 1514. VOCAL CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr])
- 1524. KEYBOARD CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of chamber music literature that includes a keyboard instrument.
- 1551. ORCHESTRA.** (1 cr [may be repeated for a max of 12 cr]; open to performers with high school exper in strings, brass, woodwind, or percussion)  
Reading and concert preparation of representative musical literature.
- 1552. UNIVERSITY CHAMBER ORCHESTRA.** (1 cr [may be repeated for a max of 12 cr])  
Study and performance of chamber orchestra literature.
- 1554. STRING CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr])
- 1564. WOODWIND CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr])
- 1568. RECORDER ENSEMBLE.** (1 cr [may be repeated for a max of 6 cr]; prereq #)  
Study and preparation for performance of music suitable for recorder ensembles.
- 1574. BRASS CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr])
- 1584. PERCUSSION CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr])
- 1594. JAZZ CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq 1105 or #)  
Study in performance of jazz combo styles.
- 3521. OPERA WORKSHOP.** (1 cr; prereq #)  
Production techniques and performances of solo and ensemble opera literature, standard and modern.
- 5501. CONCERT BAND.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Field formations (first half of fall quarter); study and performance of transcribed and original concert literature. Selected instrumentation winter and spring.
- 5502. VARSITY BAND.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of concert band literature.
- 5503. JAZZ ENSEMBLE.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of stage band literature.
- 5510. ELIZABETHAN SINGERS.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of vocal chamber music.
- 5511. UNIVERSITY SINGERS.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of sacred and secular literature from all periods by a selected group.
- 5512. UNIVERSITY CHORAL SOCIETY.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Mixed chorus open to all students. Emphasis is on the appreciation and enjoyment of choral singing. The Choral Society may perform large works with instrumental ensembles, the University Singers, and guest soloists.
- 5514. VOCAL CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of literature for small vocal ensembles.
- 5521. OPERA PRODUCTION.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Production techniques and performances of solo and ensemble opera literature, standard and modern.
- 5524. KEYBOARD CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of chamber music literature that includes a keyboard instrument.
- 5551. ORCHESTRA.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Reading and concert preparation of representative musical literature.
- 5552. UNIVERSITY CHAMBER ORCHESTRA.** (1 cr [may be repeated for a max of 12 cr]; prereq #)  
Study and performance of chamber orchestra literature.
- 5554. STRING CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of literature for small string ensembles.
- 5564. WOODWIND CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of literature for woodwind chamber ensembles.
- 5568. RECORDER ENSEMBLE.** (1 cr [may be repeated for a max of 6 cr]; prereq #)  
Study and preparation for performance of music suitable for recorder ensembles.
- 5574. BRASS CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of literature for small brass ensembles.

- 5584. PERCUSSION CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study and performance of literature for percussion ensembles.
- 5594. JAZZ CHAMBER MUSIC.** (½ cr [may be repeated for a max of 6 cr]; prereq #)  
Study in the performance of jazz combo styles.

## HISTORY AND LITERATURE

- 1221, 1222, 1223. MUSICAL STYLES.** (2 cr each; prereq 1001 or #)  
An introductory study of how music, growing out of its own past, has been shaped.
- 3201-3202-3203. HISTORY OF MUSIC.** (3 cr each; prereq 1126 and 1223 or #; 3 hrs lect, 1 hr listening per wk)  
Chronological study of the musical art, its essential forms and techniques, its principal composers; score analysis, record listening, concerts.
- 5201. ADVANCED MUSIC HISTORY.** (3 cr [may be repeated for a max of 9 cr]; prereq 3203)  
Directed music history study specializing in composer, genre, or period.
- 5221. PROSEMINAR: MUSIC HISTORY.** (3 cr; prereq 3203 or #)  
Specific problems in music history; lectures, discussions, reports, research papers, and student performance; student becomes acquainted with available documentary sources and early instruments.

## MUSIC EDUCATION

- 3605. INSTRUMENTAL MUSIC IN THE SCHOOLS.** (3 cr; prereq music major or minor and jr standing)  
The role and extent of the instrumental music program; methods and materials for beginning instruction, the school band and orchestra, and associated activities.
- 3621. ELEMENTARY SCHOOL MUSIC TEACHING.** (3 cr; prereq ¶1611 unless excused by exam)  
Practical methods including purposes, program organization, lesson planning, and newer materials, with actual demonstration of methods and discussion of typical classroom problems.
- 3622. CLASSROOM PIANO SKILLS.** (2 cr; prereq 3621 or #; not open to music majors)  
Review of basic keyboard techniques; elementary improvisation; melodic, rhythmic, and harmonic components for accompanying singing and movement activities.
- 3625. MUSIC FOR EARLY CHILDHOOD.** (1 cr; prereq #)  
Planning appropriate music activities for preschool children; development of musical skills necessary to lead activities.
- 3651. CHORAL PROBLEMS.** (1 cr [may be repeated for cr])  
Voice as an ensemble instrument; pitch, diction, quality, acoustical problems in group singing; practice in vocal arranging.
- 3655. VOCAL MUSIC IN THE SCHOOLS.** (3 cr; prereq music major or minor and jr standing)  
The organization of general music and the development of choral activities in the schools; methods and materials for individual and group instruction.
- 5601. BASIC CONCEPTS IN MUSIC EDUCATION.** (3 cr; prereq tchg exper in music or #)  
Philosophical and psychological foundations of school music.
- 5610. ADVANCED STUDIES IN JAZZ EDUCATION.** (3 cr [may be repeated for a max of 9 cr]; prereq tchg exper or #)  
Study of selected topics related to the development of a jazz ensemble in a total music program.
- 5624. TOPICS IN MUSIC EDUCATION.** (3 cr [may be repeated for a max of 9 cr]; prereq #)  
Selected topics in various areas of music education: philosophical, historical, pedagogical.
- 5650. SUPERVISION OF SCHOOL MUSIC.** (3 cr; prereq #)  
Coordination of the music program, personnel, and facilities for instruction. Supervisory tasks and techniques.
- 5656. PRACTICAL OPERATION OF SCHOOL MUSIC.** (3 cr; prereq #)  
Development and conduct of appropriate activities in general music, vocal and instrumental phases.
- 8890. PROBLEMS IN MUSIC EDUCATION.** (Cr ar [may be repeated for a max of 9 cr]; prereq consent of major adviser for Plan B project)  
Directed project(s) in theoretical and practical problems in the field of music education.

## PEDAGOGY AND CONDUCTING

- 1301, 3301. PERFORMANCE CLASS.** (1 cr each [may be repeated for a max of 12 cr]; prereq music major or #)  
Student performances and analysis of same in a class situation.
- 1411. VOICE CLASS.** (1 cr [may be repeated for a max of 3 cr]; prereq music major but open to voice major only with #)  
Group instruction in essential elements of tone production.

## Course Listings

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- 1418. DICTION.** (1 cr [may be repeated for a max of 3 cr]; prereq voice major or #)  
Proper enunciation of languages commonly found in vocal literature.
- 1424. PIANO CLASS.** (1 cr [may be repeated for a max of 6 cr]; prereq music major or #)  
Designed for the music major who is working toward the departmental piano proficiency requirement.
- 1451. STRING CLASS.** (1 cr [may be repeated for a max of 6 cr ])  
Beginning group instruction on instruments of the string choir.
- 1461. WOODWIND CLASS.** (1 cr [may be repeated for a max of 6 cr])  
Beginning group instruction on instruments of the woodwind choir.
- 1471. BRASS CLASS.** (1 cr [may be repeated for a max of 6 cr])  
Beginning group instruction on instruments of the brass choir.
- 1483. PERCUSSION CLASS.** (1 cr)  
Beginning group instruction on the percussion instruments.
- 3327. THE ART OF ACCOMPANYING.** (1 cr [may be repeated for a max of 3 cr]; prereq #)  
Role of the accompanist; musical, psychological, and technical problems; class and laboratory, with individual assignments.
- 3597-3598-3599. CONDUCTING.** (1 cr each; prereq 6 cr from major ensembles)  
Techniques; reading and interpretation of vocal, condensed, and full orchestral/band scores; laboratory practice in rehearsal procedures.
- 3661. APPLIED MUSIC TEACHING.** (1 cr [may be repeated once for cr]; prereq #)  
Procedures and materials for class and individual instruction in approved fields of applied music; evaluation of solo literature; discussion of approved and experimental pedagogical practice; lesson observation and supervised student teaching.
- 5129. CONDUCTING, ARRANGING, COMPOSITION.** (3 cr [may be repeated for a max of 9 cr]; prereq 2 yrs music theory and performing ability)  
Serious work in any one or more of the above-named fields. Entire class shall constitute a performing ensemble for conducting experience and laboratory trial of student arrangements and compositions. Group assignments and/or individual projects required according to needs and concentrations of students.
- 5161. PREPARATION OF GROUP PERFORMANCE.** (3 cr [may be repeated for a max of 6 cr]; prereq tchg exper or extensive exper in performing groups)  
Concentration on one or more of the following: rehearsal management and techniques, programming, staging, instrument care and maintenance, and special problems of opera and "musical" preparation. Organization of the class into one or more groups for actual production of a concert or operatic scenes.
- 5169. CHORAL LITERATURE INTERPRETATION.** (3 cr; prereq #)  
Musical and vocal techniques necessary for presentation of great choral compositions from Renaissance to 20th century.

## THEORY AND COMPOSITION

- 1010. INTRODUCTION TO MUSIC THEORY.** (2 cr, §1114)  
Introduction to the study of music as based upon the theoretical concepts of melody, harmony, and rhythm. Testing will be administered to determine theory proficiency.
- 1105. JAZZ IMPROVISATION.** (1 cr [may be repeated for a max of 3 cr]; prereq #)  
Study and development of improvisational facility as used in the Jazz Ensemble.
- 1114-1115-1116. BASIC MUSIC THEORY.** (4 cr each, §1010 for 1114; 3 hrs lect, 2 hrs lab per wk)  
A comprehensive study of rhythms, melodies, and harmonies based on aural perception and promoted through coordinated experiences in ear-training and sight-singing.
- 1124-1125-1126. INTERMEDIATE THEORY.** (4 cr each; prereq 1116; 3 hrs lect, 2 hrs lab per wk)  
A detailed study of tertian harmony, vocal and instrumental analysis, and creative writing coordinated with ear-training and sight-singing.
- 3103. JAZZ ARRANGING.** (2 cr [may be repeated for a max of 4 cr]; prereq 1126 or #)  
Study of transpositions, voicings and arranging concepts for the large jazz ensemble.
- 3104. JAZZ COMPOSITION.** (2 cr [may be repeated for a max of 4 cr]; prereq 3103 or #)  
Study and development of composition in the jazz idiom.
- 3107. THE SMALLER FORMS OF MUSIC.** (2 cr; prereq 1126)  
Visual and aural analysis of the smaller forms of music, and their identification.
- 3108. THE LARGER FORMS OF MUSIC.** (2 cr; prereq 3107)  
Visual and aural analysis of the larger forms of music, and their identification.
- 3111. ANALYSIS: THE 20TH CENTURY.** (3 cr; prereq 3108 or #)  
Analysis of the styles, forms, and techniques in late romantic, dodecaphonic, serial and aleatoric music.



- 3112. ORCHESTRATION.** (3 cr; prereq 3108 or #)  
Idiomatic scoring for instruments; individual assignments in the problems and possibilities of various combinations.
- 3118. CONTRAPUNTAL TECHNIQUES.** (3 cr; prereq 1126)  
Practice in the use of linear devices in canon, inventions, fugues.
- 3124. COMPOSITION I.** (3 cr; prereq 3108 or #)  
Creative writing; individual assignments in various media.
- 3128. BANDSTRATION.** (3 cr; prereq 3112 or #; offered when feasible)  
Special scoring and transcribing techniques for symphonic band.
- 3134. CHORAL ARRANGING.** (3 cr; prereq 3108 or #; offered when feasible)  
Comprehensive instruction in the art of arranging music for a choral organization.
- 3140. ELECTRONIC MUSIC.** (3 cr; prereq soph or #)  
Introduction to electronic theory, components and electronic music with emphasis on creative uses.
- 5121. PROJECTS IN MUSICIANSHIP SKILLS.** (3 cr [may be repeated for a max of 6 cr]; prereq 2 yrs music theory and adv performing ability)  
Concentration on one or more of the following: sight-reading, memorization, accompanying, ensemble playing. Supplementary work in ear-training and music analysis provided where necessary.
- 5124. COMPOSITION II.** (3 cr [may be repeated for a max of 9 cr]; prereq 3124)  
Advanced work in musical composition. Individual assignments.
- 5129. CONDUCTING, ARRANGING, COMPOSITION.** (3 cr [may be repeated for a max of 9 cr]; prereq 2 yrs music theory and performing ability)  
Serious work in any one or more of the above-named fields. Entire class shall constitute a performing ensemble for conducting experience and laboratory trial of student arrangements and compositions. Group assignments and/or individual projects required according to needs and concentrations of students.
- 5174, 5175. ADVANCED ORCHESTRATION.** (2 cr each; prereq 3112)  
Instruments of the orchestra together with a practical study of the art of symphonic scoring.

## GENERAL

- 1001. INTRODUCTION TO MUSIC.** (3 cr; not for music majors or minors unless specified by adviser; 3 hrs lect, 1 hr listening period per wk)  
The layperson's listening process with various aesthetic, historical, and structural studies designed to develop understanding and enjoyment of music.
- 1611. MUSIC FUNDAMENTALS.** (2 cr; designed for the non-music major)  
Elements of notation, keyboard and reading skills.
- 3224. TOPICS IN MUSIC.** (3 cr [may be repeated for a max of 9 cr])  
Selected studies in music listening with changing topics as defined by type, period, or composer.
- 3900. INTERNSHIP IN MUSIC.** (1-2 cr [may be repeated for a max of 6 cr]; prereq △)  
Participation in a recognized community activity that is directly related to the student's musical program and career objectives.
- 3910. FIELD STUDY IN MUSIC.** (1-6 cr [may be repeated for a max of 6 cr]; prereq #)  
Off-campus travel, research and creative activities in a specialized area of music. Credit allowed will depend on nature and scope of the study. Advance planning and supervision of planning necessary.
- 5211, 5212-5213. HONORS SEMINAR.** (2 cr each; prereq music major, 3rd-qtr jr, adv standing in performance, by invitation)  
Individual study in selected areas.
- 5606. WORKSHOP: (Various Titles To Be Assigned).** (1-6 cr each offering [no more than a total of 6 cr can be applied to a master's degree program]; prereq #)  
Selected music experiences at all levels utilizing specialized techniques and materials.
- 5910. FIELD STUDY IN MUSIC.** (1-6 cr [may be repeated for a max of 6 cr]; prereq #)  
Off-campus travel, research and creative activities in a specialized area of music. Credit allowed will depend on nature and scope of the study. Advance planning and supervision of planning necessary.
- 5990. INDEPENDENT STUDY.** (1-4 cr [may be repeated for a max of 8 cr]; prereq jr, sr, grad standing and #)  
Directed study in areas of special interest to the student, to be arranged with instructor prior to registration.

## PHILOSOPHY (Phil)

(CLS)

**1001. PROBLEMS OF PHILOSOPHY.** (4 cr)

The nature of philosophy and philosophical method is illustrated through the treatment of such philosophical problems as free will, the relation of mind to body, the existence of God, and the choice between alternative world views.

**1003. ETHICS AND SOCIETY.** (4 cr)

An examination of the presuppositions of moral reasoning. A study of ethical theories and their relation to religion, democracy, and/or science.

**1007. PHILOSOPHY OF RELIGION.** (4 cr)

An introduction to basic problems in the philosophy of religion such as the existence of God, the status of evil, and the meaning of religious language.

**1009. PRINCIPLES OF RIGHT REASONING.** (4 cr, §1005, §1011)

An examination of the primary sources of error in argumentation. In addition, techniques for detecting certain sorts of errors will be developed. The emphasis throughout will be on the cultivation of practical skills.

**3001. EXISTENTIALIST LITERATURE.** (3 cr)

Examination of philosophical ideas to be found in the literary writings of contemporary European existentialist authors.

**3110. AMERICAN PHILOSOPHY.** (4 cr)

General characteristics of American philosophy, with special emphasis on the period since 1870, including Peirce, James, Royce, and Dewey.

**3114. LOGICAL EMPIRICISM AND ANALYSIS.** (4 cr; prereq 1005 or #; offered when feasible)

The empiricist tradition in the 20th century. Russell and Wittgenstein; positivism and ordinary language philosophy.

**3118. SELECTED TOPICS.** (3 cr [may be repeated for a max of 9 cr]; prereq 1001 or #)

An in-depth examination of a particular philosopher or of a particular problem in philosophy. Specific course content will be announced in the *Class Schedule*.

**3124. CONTEMPORARY CONTINENTAL PHILOSOPHY.** (4 cr, §3122; prereq 3304 or #)

Critical examination of some of the major philosophical writings by philosophers such as Husserl, Heidegger, Sartre, Merleau-Ponty, and Ricoeur.

**3220. MEDICAL ETHICS.** (3 cr)

The theories provided by moral philosophers such as Mill and Kant will be applied to moral issues that arise in the context of the health care professions; e.g., patients rights, medical paternalism, confidentiality, truth telling, informed consent, and euthanasia.

**3230. THEORIES OF PUNISHMENT.** (4 cr; offered 1977-78 and alt yrs)

Traditional theories of punishment such as retribution, reform, rehabilitation, and deterrence will be examined both with respect to their philosophical foundations and their practical consequences.

**3270. THE THEORY OF KNOWLEDGE.** (4 cr; prereq 8 cr in philosophy or #; offered when feasible)

A critical examination of various topics in the theory of knowledge. In addition to investigating certain general questions such as "What is knowledge?" and "Is there any human knowledge?", the course will focus on such special topics as perceptual, inferential, and mathematical knowledge.

**3271. MIND, MATTER, AND MODALITY.** (4 cr; prereq 8 cr in philosophy or #; offered when feasible)

An examination of traditional and contemporary metaphysical problems. Some of the topics to be discussed are: "What are minds, and what is their relationship to the material world?", "Is everything that exists in time and space?", and "How are possibility and necessity to be understood?"

**3280. ETHICAL THEORY.** (3 cr; prereq 1001 or 1003 or #; offered when feasible)

Characteristics and criteria of value statements; the justification of moral standards; examination of some 20th-century ethical theories.

**3290. CURRENT SOCIAL POLITICAL PHILOSOPHY.** (4 cr; prereq 1001 or 1003 or #)

Detailed philosophical analysis of recent writings about social and political concepts such as freedom, democracy, socialism, communism, fascism, and anarchy.

**3301. GREEK PHILOSOPHY.** (4 cr, §5011)

The pre-Socratic origins of scientific and political thought, Plato and Aristotle.

**3302. PHILOSOPHY OF THE MIDDLE AGES.** (4 cr, §5012; prereq 3301 or #; offered when feasible)

Early Christian philosophy of Augustine and Aquinas, in contrast to Renaissance and Reformation philosophy.

**3303. THE BIRTH OF MODERN PHILOSOPHY.** (4 cr, §5013; prereq 4 cr in philosophy or #)

Impact of science and secularity on the rationalism of Descartes, Spinoza, Leibniz, and the empiricism of Locke, Berkeley, and Hume.

- 3304. ROMANTICISM AND ALIENATION.** (4 cr, §5014; prereq 3303 or #)  
Response of late 18th- and 19th-century philosophers to empiricist/rationalist controversies; emphasis on epistemological, metaphysical, social, and political views of Kant, Hegel, Marx, and Nietzsche.
- 3421. ORIENTAL PHILOSOPHIES.** (4 cr; prereq 5 cr in philosophy or #; offered when feasible)  
An overview of Hinduism, Buddhism, Confucianism, and Taoism. An analysis of the basic concepts of the Indian and Chinese civilizations.
- 3651. SYMBOLIC LOGIC.** (4 cr; prereq 1005, or Math 1296, or Math 3030 or #; offered when feasible)  
Dimensions of language; relation of logic to ordinary language, and to mathematics; calculus of propositions, classes and relations; properties of formal deductive systems.
- 5200. AESTHETICS.** (3 cr; offered when feasible)  
The possibility of a definition of art or of the aesthetic experience is examined through a survey of classic aestheticians; attention is given to the philosophy of art criticism. Research paper required of graduate students.
- 5560. PHILOSOPHY OF SCIENCE.** (4 cr, §5540; prereq 1009 or #; offered when feasible)  
An investigation of the fundamental methodological issues (e.g., confirmation, explanation, observation and theory construction, and the status of theoretical entities) confronting the sciences. Research paper required of graduate students.
- 5990. INDEPENDENT STUDY.** (1-5 cr [may be repeated for a max of 10 cr]; prereq #)  
Work in problems of special interest to the student, to be arranged with instructor in advance of registration. Written work will be required. Students may take Phil 5990 in conjunction with another philosophy course.

## PHYSICAL EDUCATION (PE) (CE)

Courses 1000-1799 will fulfill liberal education requirements. Courses with "I" designations are for beginning students while courses with "II" designations are for students with previous experience.

- 1200. SWIMMING I.** (1 cr, §1007)
- 1201. SWIMMING II.** (1 cr, §1107)
- 1202. LIFESAVING I.** (1 cr, §1306)
- 1204. WATER SAFETY INSTRUCTOR'S COURSE.** (1 cr, §1409)
- 1206. DIVING I.** (1 cr, §1004)
- 1208. SCUBA DIVING I.** (1 cr, §1205)
- 1210. SYNCHRONIZED SWIMMING I.** (1 cr, §1308)
- 1300. BALLROOM DANCE I.** (1 cr, §1022)
- 1302. FOLK DANCE I.** (1 cr, §1027)
- 1303. FOLK DANCE II.** (1 cr, §1127)
- 1304. MODERN DANCE I.** (1 cr, §1024)
- 1305. MODERN DANCE II.** (1 cr, §1124)
- 1310. JAZZ DANCE.** (1 cr, §1025)
- 1312. SQUARE DANCE I.** (1 cr, §1028)
- 1400. BADMINTON I.** (1 cr, §1032)
- 1401. BADMINTON II.** (1 cr, §1132)
- 1402. TENNIS I.** (1 cr, §1038)
- 1403. TENNIS II.** (1 cr)
- 1404. HANDBALL I.** (1 cr)
- 1406. RACQUETBALL I.** (1 cr)
- 1410. GOLF I.** (1 cr, §1050)
- 1411. GOLF II.** (1 cr, §1150)
- 1412. ARCHERY I.** (1 cr, §1047)
- 1414. BOWLING I.** (1 cr, §1048)



## Course Listings

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- 1500. **CROSS-COUNTRY SKIING I.** (1 cr, §1056)
- 1501. **CROSS-COUNTRY SKIING II.** (1 cr, §1156; prereq #)
- 1502. **ALPINE SKIING I.** (1 cr, §1057)
- 1503. **ALPINE SKIING II.** (1 cr, §1257; prereq #)
- 1504. **FIGURE SKATING I.** (1 cr, §1053)
- 1506. **SAILING I.** (1 cr, §1003)
- 1507. **SAILING II.** (1 cr, §1203)
- 1508. **CANOEING I.** (1 cr, §1002)
- 1510. **ROWING I.** (1 cr, §1008)
- 1512. **FISHING SKILLS I.** (1 cr, §1045)
- 1514. **TRAPSHOOTING I.** (1 cr, §1044)
- 1600. **PHYSICAL FITNESS.** (1 cr, §1014)
- 1602. **GYMNASTICS I.** (1 cr, §1046)
- 1603. **GYMNASTICS II.** (1 cr, §1246)
- 1604. **APPARATUS I.** (1 cr, §1146)
- 1606. **TECHNIQUES OF RELAXATION I.** (1 cr, §1061)
- 1608. **TRACK AND FIELD I.** (1 cr, §1059)
- 1610. **WRESTLING I.** (1 cr, §1039)
- 1612. **KARATE I.** (1 cr, §1035)
- 1613. **KARATE II.** (1 cr)
- 1614. **SELF-DEFENSE I.** (1 cr, §1041)
- 1616. **WEIGHT TRAINING I.** (1 cr)
- 1700. **TOUCH FOOTBALL I.** (1 cr, §1075)
- 1702. **SOCCER I.** (1 cr, §1072)
- 1704. **FIELD HOCKEY I.** (1 cr, §1069)
- 1706. **VOLLEYBALL I.** (1 cr, §1074)
- 1707. **VOLLEYBALL II.** (1 cr, §1174)
- 1708. **BASKETBALL I.** (1 cr, §1067)
- 1709. **BASKETBALL II.** (1 cr, §1167)
- 1710. **SOFTBALL I.** (1 cr, §1073)
- 1800. **OFFICIATING FOOTBALL.** (1 cr, §1086)
- 1802. **OFFICIATING BASKETBALL.** (1 cr, §1085; prereq #)
- 1804. **OFFICIATING VOLLEYBALL.** (1 cr, §1089)
- 1806. **OFFICIATING ICE HOCKEY, SKIING.** (1 cr, §1082)
- 1808. **OFFICIATING SWIMMING.** (1 cr, §1090)
- 1810. **OFFICIATING GYMNASTICS.** (1 cr, §1088)
- 1812. **OFFICIATING TRACK AND FIELD.** (1 cr, §1091)
- 1814. **OFFICIATING BASEBALL, SOFTBALL.** (1 cr, §1087)
- 1901. **VARSITY FOOTBALL.** (1 cr [may be repeated for a max of 4 cr], §1489; prereq #)
- 1903. **VARSITY FIELD HOCKEY.** (1 cr [may be repeated for a max of 4 cr], §1497; prereq #)
- 1905. **VARSITY BASKETBALL.** (1 cr [may be repeated for a max of 4 cr], §1487; prereq #)
- 1907. **VARSITY ICE HOCKEY.** (1 cr [may be repeated for a max of 4 cr], §1492; prereq #)
- 1909. **VARSITY SWIMMING.** (1 cr [may be repeated for a max of 4 cr], §1493; prereq #)
- 1911. **VARSITY WRESTLING.** (1 cr [may be repeated for a max of 4 cr], §1496; prereq #)
- 1913. **VARSITY CROSS-COUNTRY.** (1 cr [may be repeated for a max of 4 cr], §1488; prereq #)

1915. **VARSITY SKIING.** (1 cr [may be repeated for a max of 4 cr], §1498; prereq #)  
 1917. **VARSITY VOLLEYBALL.** (1 cr [may be repeated for a max of 4 cr], §1499; prereq #)  
 1919. **VARSITY TRACK.** (1 cr [may be repeated for a max of 4 cr], §1495; prereq #)  
 1921. **VARSITY TENNIS.** (1 cr [may be repeated for a max of 4 cr], §1494; prereq #)  
 1923. **VARSITY GOLF.** (1 cr [may be repeated for a max of 4 cr], §1490; prereq #)  
 1925. **VARSITY BASEBALL.** (1 cr [may be repeated for a max of 4 cr], §1486; prereq #)

## PHYSICAL EDUCATION PROFESSIONAL COURSES

1326. **PREADOLESCENT CONSIDERATIONS.** (4 cr)  
 Methods and techniques for the presentation of lead-up games, body mechanics and rhythms in the elementary school program, general program planning and evaluation of the curriculum for the elementary school level.
3100. **ADAPTED PHYSICAL EDUCATION.** (3 cr; prereq #)  
 Special physical education for the mentally, physically, and socially handicapped; corrective physical education for body mechanics; developmental physical education for physical fitness.
3112. **FOUNDATIONS OF PHYSICAL EDUCATION.** (4 cr)  
 Principles of program planning and methods applied to physical education; evaluation of curriculum and materials; practice in planning for instruction; organizational and administrative techniques.
3113. **MOTOR LEARNING.** (3 cr; prereq Psy 3331)  
 Factors affecting motor learning; theories of learning and their application to physical education; motor learning at beginning and advanced skill levels; measurement of learning and performance.
3115. **PHYSIOLOGICAL APPLICATION TO SPORTS.** (3 cr; prereq Biol 1042)  
 Consideration of muscular contraction for strength development programs; contributions of training programs to endurance, speed and skill acquisition; influence of training on the cardiovascular system; fatigue and recovery; early season training, pregame meals, and ergogenic aids in athletics.
3117. **SPORT AND THE AMERICAN SOCIETY.** (3 cr)  
 Investigation, research, and discussion of sport in the American social culture.
3118. **HUMAN BIOMECHANICS.** (4 cr; prereq Biol 1012, Biol 1042)  
 Application of neurophysiological, anatomical, and physical principles to human movement.
3119. **PERFORMANCE ASSESSMENT.** (3 cr; prereq #)  
 Introduction to measurement theory, practical experiences in measuring physical fitness components, sport skills, and social development.
3120. **TEACHING PHYSICAL EDUCATION.** (3 cr; prereq ¶EdSe 3202 or △)  
 Methods of teaching physical education in the elementary and secondary schools, and planning instruction.
3150. **TESTS AND MEASUREMENTS.** (3 cr)  
 Principles of test construction, measurement and statistical analysis in physical education.
3170. **PRACTICUM: PHYSICAL EDUCATION.** (1 to 4 cr [may be repeated for a max of 4 cr]; prereq △)  
 Supervised experiences in teaching, coaching, or related functions in schools or other community agencies.
3212. **THE WORLD OF SPORT.** (3 cr; prereq #)  
 A survey of contemporary physical education and sport in selected countries.
3317. **SPORT AND POLITICS.** (3 cr; prereq #)  
 Detailed examination of national and international political policies and events that affect sport. The utilization of sport as a political tool will receive major emphasis.
3333. **INDIVIDUAL SPORTS: THEORY-PRACTICE.** (4 cr; prereq #)  
 Theoretical and practical approach to the learning and teaching of individual sports in general with special emphasis on tennis, golf, badminton, and archery.
3334. **TEAM SPORTS: THEORY-PRACTICE.** (4 cr; prereq #)  
 Analysis of the skills, strategies, teaching methods, and materials of team sports with practicum specifically designed for soccer, volleyball, basketball, and softball.
3400. **DANCE TEACHING.** (2 cr; prereq #)  
 Methods and practices for teaching various aspects of the dance program.
3901. **HUMAN ANATOMY FOR DANCERS.** (2 cr)  
 Study of human musculoskeletal systems as they pertain to dance.

## Course Listings

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- 3950. INDEPENDENT STUDY IN PHYSICAL EDUCATION.** (1-6 cr [may be repeated for a max of 9 cr]; prereq #)  
Individualized research or involvement in selected areas of physical education related to a student's special interest.
- 3951. SPECIAL TOPICS: (Various Titles To Be Assigned).** (1 to 6 cr [may be repeated for a max of 6 cr]; prereq #)  
Designed for intensive study of particular areas in physical education at the undergraduate level.
- 5110. SUPERVISION OF PHYSICAL EDUCATION.** (3 cr)  
Supervisory activities of the physical education teacher, including setting up a program, establishing rapport between the teacher and supervisor, and providing a program of in-service training for the physical education teacher.
- 5111. ADMINISTRATION OF INTERSCHOOL ATHLETICS.** (3 cr; prereq #)  
Administrative theory and practice related to interscholastic athletics.
- 5113. RESEARCH IN MOTOR LEARNING.** (3 cr; prereq 3113 or #)  
Directed laboratory research in the area of motor learning.
- 5120. ADVANCED HUMAN BIOMECHANICS.** (3 cr; prereq undergrad course in human biomechanics or #)  
Techniques of kinesiological analysis of basic movements and skills in physical education; evaluation of pertinent research methods and devices; application to individual projects.
- 5121. CONTRIBUTIONS OF BASIC SCIENCES.** (3 cr; prereq #)  
Pertinent research in basic sciences; applications in selected areas.
- 5122. APPLIED PHYSIOLOGY.** (3 cr; prereq 3115 or #)  
Advanced study and research into the physiological aspects of sports and fitness.
- 5136. PSYCHOLOGY OF COACHING.** (3 cr; prereq 3113 or #)  
Psychological concepts applied to coaching and teaching of motor skills, including motivation, aggression, anxiety, and personality variances.
- 5151. TRENDS IN CURRICULUM.** (3 cr)  
For students without previous experience in curriculum; objectives, content, organization, evaluation, and trends.
- 5160. ADVANCED MEASUREMENT TECHNIQUES.** (3 cr; prereq Educ 5305 or #)  
Study of the construction and interpretation of evaluative procedures; place and limitation of measurement.
- 5161. SCIENTIFIC INTERPRETATIONS.** (2 cr)  
Interpretation of current professional literature and statistical treatments in current research. Written test construction and item analysis.
- 5170. PRINCIPLES OF PHYSICAL EDUCATION.** (3 cr)  
Aims, scope, and biological aspects of physical education with special treatment of its place in education.
- 5171. INDEPENDENT STUDY.** (1-4 cr [may be repeated for a max of 9 cr]; prereq Δ)  
Independent studies selected by each student to strengthen areas of possible weakness, broaden scopes, or augment present knowledges and/or skills.
- 5172. READINGS.** (1-4 cr [may be repeated for a max of 9 cr]; prereq Δ)  
Content will vary with interests and backgrounds of students. Emphasis will be on recent developments in the field; new theories, changes in old theories, and new techniques and procedures that might have an impact on the physical educator.
- 5173. SPECIAL TOPICS: (Various Titles To Be Assigned).** (1 to 6 cr [may be repeated for a max of 6 cr; no more than a total of 6 cr can be applied to a Graduate School program]; prereq #)  
Intensive study in particular areas as identified needs arise for professionals in physical education.
- 5526. ELEMENTARY PHYSICAL EDUCATION TODAY.** (3 cr)  
Principles, techniques and procedures in developing basic motor skills, application of movement education, adaptive physical education, perceptual motor competency, program development and curriculum evaluation for early childhood and elementary school activities.
- 5620. PREVENTION, CARE OF ATHLETIC INJURIES.** (3 cr; prereq CC 3116 or #)  
An overview of problems (recognition, principles, responsibilities) related to athletic injuries in secondary and college programs; demonstration and practice in training techniques and familiarity with use of instruments for athletic rehabilitation.
- 5700. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [no more than a total of 6 cr can be applied to an MA or MEd degree program]; prereq #)  
Opportunities for physical educators to concentrate study on common curricular and instructional topics.



**PHYSICS (Phys)****(CLS)****1001-1002, 1003. ELEMENTARY PHYSICS.** (4 cr each; 3 hrs lect, 2 hrs lab)

Beginning physics for meeting minimum requirements in certain preprofessional fields and a general survey for those not planning to continue in the physical sciences. Phys 1001 must be taken first; Phys 1002 and Phys 1003 can be taken in any order.

**1010. IDEAS IN PHYSICS.** (3 cr; will not satisfy requirements for majors or minors in physics)

Descriptive, nonmathematical survey of basic concepts in physics from Newton to the present, including: concept of energy in mechanics, electricity, and heat; need for relativity and quantum theories; atoms, nuclei, and radiation. Primarily for liberal arts students; not for preprofessional preparation.

**1015. HIGHLIGHTS IN PHYSICS.** (3 cr; will not satisfy requirements for majors or minors in physics)

Various topics in physics of current interest and importance to the nonscientist treated in a descriptive, nonmathematical manner. Each topic presented by a faculty member with a special interest in that field. Not intended for preprofessional preparation.

**1107-1108-1109. GENERAL PHYSICS.** (5 cr each; primarily for science majors and engineers; prereq completion of or  $\Phi$ Math 1296 for 1107...completion of or  $\Phi$ Math 1297 for 1108; 4 hrs lect, 1 hr rec and quiz, 2 hrs lab)

Calculus-level general physics course. Covers topics in mechanics, heat, sound, light, electricity, magnetism, and modern physics.

**3025. SPACE AND TIME IN RELATIVITY.** (3 cr; will not satisfy requirements for majors or minors in physics)

Careful, leisurely consideration of Einstein's theory of relativity, which requires remarkably little high school algebra, allowing students to work out each step of the theory for themselves and understand relativity from the point of view of the professional physicist.

**3040. INTRODUCTION TO INSTRUMENTATION.** (3 cr; intended for non-physics majors; prereq 1003 or  $\Phi$ ; 2 hrs lect, 2 hrs lab)

Applications of integrated circuits, general use of operational amplifiers in a variety of measurements and in analog computation, digital circuits, interfacing.

**3050. ENVIRONMENTAL STUDIES.** (3 cr; will not satisfy requirements for majors or minors in physics; prereq 1001 or  $\Phi$ ; 3 hrs lect)

Studies of the environment through application of elementary laws of physics. Topics treated: heat balance and transport for earth's surface; radioactivity; elements of remote sensing in biology, geology and physics; selected topics on natural phenomena. A portion of the course will consist of guest lectures by persons engaged in research on environmental problems.

**3070. PHYSICS LABORATORY.** (1 cr; prereq  $\Phi$ 3081 or  $\Phi$ ; 2 hrs lab)

Experiments selected to provide experience with both concepts and techniques in physics.

**3080-3081. DYNAMICS, ELECTRICITY AND MAGNETISM.** (4 cr each; prereq 1108 and  $\Phi$ Math 3298 for 3080; 4 hrs lect)

Dynamics, electricity and magnetism.

**3085. ELECTRICAL NETWORKS.** (4 cr; prereq 3081 and  $\Phi$ Math 3380 or  $\Phi$ ; 3 hrs lect, 3 hrs lab)

DC networks, meters, bridge circuits, transients, AC circuits, phasors, resonance, power and impedance matching, filters, transformers, transmission lines.

**3098. PHYSICS TUTORIAL PROJECT.** (0 to 2 cr [may be repeated for a max of 4 cr, only 2 cr applicable toward physics major]; prereq 3081 and  $\Delta$ )

Tutoring students in 1- and 3-prefixed physics courses under supervision of a physics staff member.

**3099. SEMINAR.** (1 cr; prereq  $\Delta$ )

Practice in the preparation and oral presentation of reports on articles from the literature or on senior research.

**3111. RESEARCH.** (Cr ar [may be repeated for a max of 4 cr])**5092. OPTICS LABORATORY.** (2 cr; prereq  $\Phi$ 5119; 4 hrs lab; offered when feasible)

Experiments in interference, diffraction, polarization, optical spectra, photon counting techniques.

**5093. MODERN PHYSICS LABORATORY.** (2 cr; prereq 3081 and  $\Phi$ 5101 or  $\Phi$ ; 4 hrs lab ar; offered when feasible)

Experiments in modern physics; microwaves, radioactivity, photoelectric effect, ionization of gases, and optical spectra.

**5094. ADVANCED LABORATORY.** (2 cr; prereq 3081 or  $\Phi$ ; 4 hrs lab ar)

Experimental problems of special interest to the student. Project may extend over more than 1 quarter. Credit will be given at the end of the quarter in which the project is completed.

**5101-5102-5103. MODERN PHYSICS.** (4 cr each; prereq 3081; 4 hrs lect)

Selected topics in modern physics, including elements of quantum mechanics and applications.

**5107. THERMAL PHYSICS.** (4 cr; prereq  $\Phi$ 5101; 4 hrs lect)

Elements of statistical physics, thermodynamics.

## Course Listings

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- 5109. STATISTICAL PHYSICS.** (4 cr; prereq 5107; 3 hrs lect plus independent study)  
Principles of statistical physics applied to equilibrium properties of classical and quantum systems.
- 5119. OPTICS.** (4 cr; prereq 3081 or #; 4 hrs lect)  
Fundamentals of physical optics.
- 5120. ELECTRONICS.** (4 cr; prereq 3085; 3 hrs lect, 3 hrs lab; offered when feasible)  
Electronic devices, amplifiers, special circuits common in research.
- 5123. THEORETICAL MECHANICS.** (4 cr; prereq 3081 and Math 3380; 3 hrs lect plus independent study)  
Theoretical mechanics, including Lagrangians and Hamiltonians, symmetries and conservation laws, with examples from relativity and electrodynamics, and introducing relevant mathematics.
- 5124. MATHEMATICAL METHODS.** (4 cr; prereq 5123; 3 hrs lect plus independent study)  
Systematic development of mathematical techniques in mechanics and electromagnetic theory.
- 5125. ELECTROMAGNETIC THEORY.** (4 cr; prereq 5124; 3 hrs lect plus independent study)  
Electric and magnetic fields, Maxwell's equations and applications, radiation.
- 5130. INTRODUCTION TO ATMOSPHERIC PHYSICS.** (3 cr; prereq 5125; 3 hrs lect; offered when feasible)  
Atmospheric composition and structure; thermodynamics; radiative transfer; atmospheric electricity; chemistry; origin of the earth's atmosphere.
- 5150-5151. INTRODUCTION TO SOLID STATE PHYSICS.** (3 cr each; prereq 5103 and 5107; 3 hrs lect; offered when feasible)  
Solid structure, thermal and electronic properties of solids, and solid surfaces.
- 5160. ATOMIC AND MOLECULAR STRUCTURE.** (3 cr; prereq 5103 or #; 3 hrs lect; offered when feasible)  
Fine and hyperfine structure of atoms and molecules, selection rules and transition probabilities, coupling schemes, and potential curves.
- 5166. HYDRODYNAMICS.** (3 cr; prereq 5123 or #; 3 hrs lect; offered when feasible)  
Mathematical description of fluid motion with particular emphasis on water waves and currents and some atmospheric problems.
- 5174. ELECTRODYNAMICS.** (4 cr; prereq 5125 or #; 3 hrs lect plus independent study)  
Maxwell's equations, relativity and electrodynamics, radiation and scattering of electromagnetic waves.
- 5176-5177-5178. QUANTUM MECHANICS.** (4 cr each; prereq 5103 and 5125; 3 hrs lect plus independent study)  
Schrödinger equation, operator formulation, angular momentum, symmetries, perturbation theory, scattering, identical particles, interaction with electromagnetic field.
- 5185. RELATIVISTIC QUANTUM MECHANICS.** (3 cr; prereq 5178; 3 hrs lect; offered when feasible)  
The Poincaré group and relativistic one-particle quantum mechanics, elementary quantum field theory, electromagnetic interactions.
- 5187. PARTICLE PHYSICS.** (3 cr; prereq 5185; 3 hrs lect; offered when feasible)  
Properties of elementary particles, conservation laws and symmetry groups, strong and weak interactions.
- 8199. SEMINAR: SELECTED TOPICS.** (Cr ar [may be repeated for cr]; prereq #)
- 8200. RESEARCH IN PHYSICS.** (Cr ar [may be repeated for cr])

## PHYSIOLOGY (Phsl)

(SM)

- 3805f-3806w. PATHOPHYSIOLOGY FOR NURSING STUDENTS.** (2 cr each; prereq Biol 1012 and Biol 1042)  
Carter, Pozos  
Designed to acquaint nursing students with basic physiological and pathological processes involved in common disease conditions representative of those affecting the major organ systems of the human body. Cases are demonstrated to facilitate student recognition of significant clinical syndromes and to reinforce the learning of basic and major physiological principles.
- 3901. PROBLEMS IN PHYSIOLOGY.** (1-3 cr [may be repeated for a max of 6 cr]; prereq sr and #) Pozos  
Advanced work in special fields.
- 5807w-5808s. HUMAN PHYSIOLOGY.** (7 cr each; prereq Biol 5541 and #; not open to med students) Haller, Heller, Mohrman, Pozos, Stauffer, Wittmers  
This course presents a comprehensive overview of medically related physiological function. All major organ systems are covered both as individual systems and as they interrelate with the rest of the human body.

**POLITICAL SCIENCE (Pol)****(CLS)**

- 1011. AMERICAN GOVERNMENT AND POLITICS.** (4 cr, §1010)  
Principles of American national government. Survey of the American governmental system, structure, operations, and services; constitutionalism, federalism, civil liberties, parties, pressure groups, and elections. Replaces former Pol 1010.
- 1050. INTERNATIONAL RELATIONS.** (4 cr)  
Introduction to contemporary international politics; nationalism; imperialism; nature of state power; international organization.
- 1100. INTRODUCTION TO POLITICAL SCIENCE.** (4 cr)  
Elements common to the political activities of human societies; basic concepts of political science; survey of major areas of the discipline. Recommended as an introduction to upper division courses in political science.
- 1500. CONTEMPORARY POLITICAL SYSTEMS.** (4 cr)  
Survey of the politics of selected countries chosen to reflect alternative styles of politics and forms of government; examples of Western liberal democracies, Communist, and Third World systems will be treated.
- 1902. SPECIAL TOPICS.** (1 to 4 cr [may be repeated for a max of 8 cr]; offered when feasible)  
Detailed examination of contemporary topics in political science. Specific course content will be announced in *Class Schedule*.
- 3020. STATE GOVERNMENT.** (4 cr; prereq 1011)  
The states in the American federal system; governmental institutions and processes; intergovernmental relations. Special reference to Minnesota.
- 3030. URBAN GOVERNMENT.** (4 cr; prereq 1011)  
Legal, administrative, political, and social aspects of American local government; emphasis on intergovernmental relations and regional cooperation.
- 3060. NATIONAL POLICY ISSUES.** (4 cr; prereq 1011 or #)  
Critical issues of contemporary national government; emphasis on finance, foreign and military policy, and environmental policy decisions.
- 3080. GOVERNMENT AND CONSERVATION.** (4 cr; prereq 1011 or #)  
American natural resource problems with special attention to conservation activities on the national, state, and local levels; development of conservation agencies in Minnesota.
- 3099. SEMINAR: GOVERNMENT PROCESSES (U.S.).** (3 cr; prereq sr, 8 cr in relevant upper division political science courses and #; offered when feasible)  
Supervised research and writing in American governmental systems and processes.
- 3110. AMERICAN CONSTITUTIONAL LAW I.** (4 cr; prereq 1011)  
Nature of constitutional law; judicial review; national-state and interstate relations; powers of the national government.
- 3111. AMERICAN CONSTITUTIONAL LAW II.** (4 cr; prereq 3110 or #)  
Constitutional rights; due process; equal protection of the laws.
- 3160. THE LEGISLATIVE PROCESS.** (4 cr, §5160; prereq 1011) Grau  
Lawmaking in the United States on the federal and state levels; social and economic forces involved in legislative enactments.
- 3199. SEMINAR: U.S. PUBLIC POLICY.** (3 cr; prereq 8 cr in relevant upper division political science courses and #; offered when feasible)  
Supervised research and writing in selected major American public policy issues.
- 3220. INTRODUCTION TO PUBLIC ADMINISTRATION.** (5 cr; prereq 1011)  
Introduction to the internal operations of bureaucratic organizations and the role of the latter in governmental policy making. Two basic themes in the course are questions of the capability of modern bureaucracy in meeting its own goal of technical efficiency, and the impact of bureaucratic forms of organization on a democratic society.
- 3310. PUBLIC OPINION AND PROPAGANDA.** (4 cr; prereq 1011 or #)  
Use of public opinion and propaganda techniques by pressure groups and political parties; nature of persuasion; determination of public opinion.
- 3399. SEMINAR: URBAN AFFAIRS.** (3 cr; prereq 8 cr in relevant upper division urban studies courses and #; offered when feasible)  
Supervised research and writing in urban processes and problems.
- 3410-3411f. INTERNATIONAL LAW I, II.** (4 cr each; prereq 8 cr in political science or #)  
3410: Introduction to international law; nature and sources; legal personality; nationality. 3411: Territorial questions; diplomatic and consular agents; treaties; peaceful settlement of disputes.



## Course Listings

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- 3412. INTERNATIONAL LAW III.** (3 cr; prereq 1050 or 3411 or #)  
Coercive self-help short of war; law of war; military occupation; war crimes.
- 3450. PROBLEMS OF WORLD POLITICS.** (4 cr; prereq 1050 or #; offered alt yrs)  
Detailed analysis of selected current international problems and of solutions proposed.
- 3499. SEMINAR: INTERNATIONAL RELATIONS.** (3 cr; prereq sr, 8 cr in relevant upper division political science courses and #; offered when feasible)  
Supervised research and writing in current problem areas of international relations.
- 3510. GOVERNMENT, POLITICS OF SOVIET UNION.** (4 cr; prereq jr and 12 cr in social sciences or #)  
Rise of bolshevism and the Russian Revolution; ideology and development of communist regime; political leadership; organization and uses of political power in the Soviet Union.
- 3512. SOVIET DOMESTIC AND FOREIGN POLICIES.** (4 cr; prereq jr and 12 cr in social sciences or #; offered when feasible)  
Current Soviet problems and issues: political stability and change, including the challenge from Soviet dissidents; economic development; impact of social and cultural change; foreign relations with the West, the developing countries, and other communist states.
- 3516. EUROPEAN GOVERNMENT AND POLITICS.** (5 cr; prereq jr and 1011 or 1100)  
Current governmental systems and politics in England, France, Germany, and other European countries; comparative analysis of their political institutions and processes; problems of democratic politics.
- 3520. CHINESE GOVERNMENT AND POLITICS.** (4 cr; prereq jr and 12 cr in social sciences or #)  
Background of 20th-century Chinese politics and the emergence of Chinese communism; evolution of the People's Republic since 1949; party, government, and military roles and relationships; nature of economic, social, and foreign policies; the Cultural Revolution; problems of political succession and future development.
- 3530. GOVERNMENT AND POLITICS IN CANADA.** (3 cr; prereq jr, 12 cr in social sciences or #; offered when feasible)  
Canadian federal institutions; constitutional issues; social and economic context of Canadian politics; ethnic cleavages; the party system; the policy process.
- 3599. SEMINAR: COMPARATIVE GOVERNMENT.** (3 cr; prereq sr, 8 cr in relevant upper division political science courses and #; offered when feasible)  
Training in advanced analysis, with supervised research and writing, in selected areas of comparative government and politics.
- 3710. GOVERNMENT INTERNSHIP.** (1-8 cr [may be repeated for a max of 12 cr], of which no more than 4 cr may be applied to satisfy the requirements for a major in political science; prereq jr and #; offered when feasible)  
Scheduled work assignments with direct supervision in the performance of governmental functions, full-time or part-time employment basis.
- 3902. SPECIAL TOPICS.** (1 to 4 cr [may be repeated for a max of 8 cr]; prereq 8 cr in social sciences or #; offered when feasible)  
Detailed examination of contemporary topics in political science. Specific topic to be covered in the course will be announced in *Class Schedule*.
- 5170. POLITICAL INTEREST INDIVIDUALS AND GROUPS.** (4 cr; prereq jr and 5 cr in political science or 12 cr in social sciences or #)  
Role of interest groups and individuals who lobby government in order to have an impact on public policy. Internal dynamics of groups; strategies of lobbying and its regulation.
- 5320. THE AMERICAN CHIEF EXECUTIVE.** (3 cr; prereq 1011 and #; offered alt yrs)  
Constitutional powers and political roles of the president and governors; the chief executive and administration; executive relations with legislatures; party and popular leadership; presidential roles in crisis.
- 5330. THE JUDICIAL PROCESS.** (4 cr; prereq 1011 or #; offered alt yrs)  
Structure of the American judiciary; selection of judges; the process of litigation; influences on judicial decisions; impact of and compliance with decisions.
- 5340. METROPOLITAN GOVERNMENT AND POLITICS.** (4 cr; prereq 3030)  
Development of political and governmental problems in metropolitan areas; systems and structures for area-wide local government; emerging trends, potentials, and limitations for metropolitan government in the United States and elsewhere; politics of metropolitan reform.
- 5350. STATE AND LOCAL FINANCE.** (4 cr; prereq 1011 and #; offered alt yrs)  
Survey of the tax and revenue systems of state and local units of government in the U.S.
- 5650. AMERICAN POLITICAL THOUGHT.** (4 cr; prereq 8 cr in political science or 12 cr in social sciences or #)  
From colonial times to present; Puritanism; Constitution; Calhoun; social Darwinism; rise of populist thought; development of legal theory; political thought and American literature.

- 5652. POLITICAL THEORY AND UTOPIA.** (4 cr; prereq 8 cr in social sciences or #)  
Selected great utopias; planning in ideal states; the problem of authority; radical and conservative utopias and dystopias; utopian literature, chiefly American.
- 5653. CLASSICAL POLITICAL THOUGHT.** (4 cr; prereq 8 cr in political science or 12 cr in social sciences or #; offered when feasible)  
Classical Greek thought; Plato and Aristotle; primitive natural law; Cynics and Stoics; political theory in the Roman state; political thought in the medieval period.
- 5655. EARLY MODERN POLITICAL THOUGHT.** (4 cr; prereq 8 cr in political science or 12 cr in social sciences or #; offered when feasible)  
Renaissance political thought, beginning with Machiavelli; idea of sovereignty; Protestant conceptions; English Civil War; Hobbes; Locke; the right to rebel; Montesquieu; Rousseau.
- 5657. RECENT POLITICAL THOUGHT.** (4 cr; prereq 8 cr in political science or 12 cr in social sciences or #)  
Main currents from French Revolution to present; Marxism and its critics; non-Marxist socialism; syndicalism; anarchism; conservatism; fascism; utopian socialism.
- 5704. INDEPENDENT STUDY.** (1-4 cr [may be repeated for a max of 8 cr]; prereq 12 cr in political science and 8 cr in other social sciences, or #)  
Opportunity for advanced study and research under supervision of a staff member; student must consult with instructor prior to registration.
- 5740. AMERICAN POLITICAL PARTIES.** (4 cr; prereq 1011)  
Role and functions of the party in American government; party composition and organization; process of nomination and policy formulation; regulation of party organization and activities.
- 5902. SPECIAL TOPICS.** (1 to 4 cr [may be repeated for a max of 8 cr]; prereq 12 cr in social sciences or #; offered when feasible)  
Detailed examination of contemporary topics in political science. Specific course content will be announced in *Class Schedule*.

## PSYCHOLOGICAL APPLICATIONS (PsyA) (CE)

- 5841. TESTS AND MEASUREMENTS.** (3 cr; prereq Educ 5305 or PsyF 5811)  
Measuring intelligence, achievement, interests, attitudes, and personality traits; using measurement in educational guidance, personnel work, administration, and supervision.
- 5950. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr; no more than a total of 6 cr can be applied to a Graduate School program]; prereq #)  
Opportunities for advanced students to concentrate study on common problems in psychology.
- 5960. SPECIAL TOPICS IN PSYCHOLOGY: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr; no more than 6 cr can be applied to a Graduate School program]; prereq #)  
Study of selected advanced topics in psychology.
- 8500. SEMINAR: GUIDANCE.** (1 cr [may be repeated for a max of 6 cr])  
Integration of graduate study for master's degree candidates in counseling and school guidance services. Examination of issues and developments in guidance; review of literature and research.
- 8531. FIELD PRACTICE IN GUIDANCE.** (3 cr; prereq PsyF 5211, PsyF 5512, and #)  
Initial experience in guidance and counseling, observation of students, consultation with teachers and parents, and observation of ongoing guidance programs.
- 8532. PRACTICUM: INDIVIDUAL COUNSELING.** (3 cr; prereq #)  
Individual assignments in counseling under supervision, using closed circuit TV, videotape, or audiotape.
- 8541. PRACTICUM: GROUP COUNSELING.** (3 cr; prereq 8532 and #)  
Assignments in group counseling under supervision, using closed circuit TV, videotape, audiotape

## PSYCHOLOGICAL FOUNDATIONS (PsyF) (CE)

- 5111. PERSONALITY AND ADJUSTMENT.** (3 cr; prereq 9 cr in education or #)  
Current conceptions of personality and adjustment, factors involved in adjustment, stresses of modern life, failures of adjustment, development of human effectiveness.
- 5121. PSYCHOLOGY OF BEHAVIOR DISORDERS.** (4 cr; prereq Psy 1003, Psy 3531, or Psy 3111 and #)  
Study of abnormal behavior; concepts of normality and abnormality; types of abnormal behavior, their dynamics and treatment.

## Course Listings

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- 5211. GROUP PROCEDURES IN GUIDANCE.** (3 cr; prereq grad standing, 5511 or #)  
Problems of group work in guidance; study of group dynamics and group procedures; laboratory experience and materials for group guidance in school situations.
- 5221. GROUP DYNAMICS IN EDUCATION.** (3 cr)  
Review of literature; practical application of social-psychological concepts to analysis of group behavior.
- 5311. CHILD DEVELOPMENT: CURRENT THEORY AND RESEARCH.** (3 cr; prereq Psy 3311 or EEd 3114 or #)  
An introduction to the psychoanalytic, cognitive-developmental, and social learning viewpoints on child development. Review of significant research derived from these theoretical viewpoints.
- 5312. CHILD DEVELOPMENT: RESEARCH TOPICS.** (3 cr; prereq Psy 3311 and #)  
Guided independent study of current research literature in a selected area of child development of special interest to the student.
- 5321. ADOLESCENT PSYCHOLOGY.** (3 cr; prereq 12 cr in psychology, sociology, or home economics)  
Physical, social, emotional, intellectual, and personality development of the adolescent.
- 5511. PUPIL PERSONNEL SERVICES.** (3 cr; prereq 9 cr in psychology or education)  
Philosophy, principles, and practices in development and operation of pupil personnel services; role of counselor, teacher, principal, and specialized personnel; guidance techniques and case studies.
- 5512. DEVELOPMENTAL GUIDANCE.** (4 cr; prereq 9 cr in psychology or #)  
Developmental task theory and the tasks of the child, adolescent, and young adult. Application of the developmental task theory to guidance and learning situations.
- 5515. HUMAN SEXUALITY—COUNSELING.** (4 cr; prereq 5521, Psy 3215 or #)  
Discussion of human sexuality as it applies to the various developmental stages from birth through old age, emphasizing implications of the counseling function. Discussion will also involve the role of counseling in promoting a greater understanding and acceptance of human sexual behavior in various institutional settings through sex education and community organization.
- 5521. COUNSELING PROCEDURES.** (3 cr; prereq 5511, 5811 and #)  
Introductory course in counseling for school and community personnel; basic theories and principles; counseling procedures, case studies, and role playing as they relate to counseling situations.
- 5522. DYNAMICS OF INTERVIEWING.** (4 cr; prereq 12 cr in psychology or #)  
Provides theory and practice opportunities for learning to interview effectively or for improving interviewing skills.
- 5611. PSYCHOLOGY OF HUMAN LEARNING.** (3 cr; prereq 12 cr in psychology or #)  
Principles and research in human learning. Implications and applications for instruction and modifying behavior.
- 5712. CAREER DEVELOPMENT: CURRENT THEORIES AND PRACTICES.** (4 cr, \$PsyA 5711; prereq 5511 and 5512)  
Major theoretical conceptions of the process of career development and their research base. The role of guidance and education in career development. An evaluation of current practices in occupational guidance and career education.
- 5811. STATISTICAL METHODS IN EDUCATION.** (3 cr; prereq ¶5821 and #)  
Descriptive statistics, introduction to correlational analysis and regression, sampling techniques and statistical inference; application of simple analysis of variance and chi square in educational research.
- 5821. STATISTICAL METHODS LABORATORY.** (2 cr; prereq ¶5811)
- 5831. BASIC PRINCIPLES OF MEASUREMENT.** (3 cr; prereq 5811 or #)  
Principles underlying construction and use of psychological tests; theory and practice of testing related to statistical methods; types and uses of derived scores; factors influencing reliability and validity.
- 8041. METHODS IN EDUCATIONAL RESEARCH.** (3 cr; prereq candidate for MA degree, 5811)  
Methods and techniques in the design, execution, analysis, and reporting of educational research problems.
- 8050.\* RESEARCH PROBLEMS.** (1-9 cr; prereq #)  
Independent study.

## PSYCHOLOGY (Psy)

(CE)

- 1003. GENERAL PSYCHOLOGY.** (5 cr)  
Introduction to scientific study of behavior; consideration of the major topics investigated by psychologists with emphasis on basic principles, concepts, and procedures used in psychology.



- 1501. HUMAN DEVELOPMENT AND ADJUSTMENT.** (3 cr, §SSP 1101; not open to jrs or srs)  
Psychology of human development and processes of adjustment with emphasis on the healthy personality, adjustment in college, and for the young adult. Primary concern given to human relations, human beings and their environment, and the accomplishment of developmental tasks.
- 1701. CAREER DEVELOPMENT: A TIME TO DECIDE.** (1 to 3 cr)  
Discussion of the origin of and current attitude toward the work ethic; personal assessment of values, needs, aptitudes, and interests; exploration of occupational information; participation in a decision-making process—culminating in a tentative occupational (career field) choice.
- 3021-3022. EXPERIMENTAL DESIGN AND METHODOLOGY.** (5 cr each; prereq 3811 and #; 3 hrs lect, 2 hrs lab, 2 hrs ar)  
Introduction to problems and methods of experimentation in psychology; the logical and scientific basis of experimental psychology; problems and techniques of designing, conducting, and reporting experiments; selected statistical topics and methods of psychological scaling; experimental procedures and research findings in areas of psychophysics, sensory processes, perception, learning, motivation, thinking, language, and group behavior.
- 3041. MOTIVATION AND EMOTION.** (3 cr; prereq 3021)  
Situational, psychological, and physiological determinants of human and animal behavior; theories of motivation and emotion.
- 3061. PHYSIOLOGICAL PSYCHOLOGY.** (3 cr; prereq 1003, Biol 1109, and Biol 1110)  
Physiological basis of behavior, including sensory processes, perception, emotion, motivation, intelligence, and learning.
- 3081. SYSTEMS OF PSYCHOLOGY.** (3 cr; limited to sr psychology majors or by #; prereq 9 cr in psychology courses numbered 3000 or above)  
Survey of historical development and current status of contemporary systems and theories in psychology.
- 3111. PSYCHOLOGY OF PERSONALITY.** (3 cr; prereq 9 cr in upper division psychology courses)  
Basic concepts, issues, problems, and methods involved in the study of personality; introduction to selected theories of personality.
- 3201. SOCIAL PSYCHOLOGY.** (3 cr; prereq 1003 and Soc 1100)  
Individuals as members of society; influence of social forces and social interaction on personality development and attitudes. Study of group interactions and influences.
- 3211. GROUP DYNAMICS.** (3 cr; prereq 3201, sr status, and a 2.00 [C] average in psychology)  
A laboratory in which the class group provides the material for the study of principles and processes of interaction in groups, structure, and functioning of groups; leadership, communication, social influence; aspects of sensitivity training.
- 3215. TOPICS IN HUMAN SEXUALITY.** (3 cr; prereq 1003 or #)  
Examination of constitutional and psychosocial factors leading to gender development and establishment of sexual roles; group discussion of family and peer group influences on attitudes, values, and behavior.
- 3221. CHANGING ROLE OF WOMEN.** (4 cr; prereq 1003)  
Analysis of biological and cultural factors present in the formation of "masculine" and "feminine" roles and personalities; the relationship between sex identity and self-concept; the effects of sex roles on interpersonal relationships; formation of attitudes, values, and beliefs as related to sex roles; effects of sex roles on vocational choice and achievement.
- 3311. CHILD DEVELOPMENT.** (3 cr, §3331; prereq 1003)  
Introduction to child development with emphasis on basic processes involved in the development of physical and motor abilities, perceptual and cognitive functions, social and emotional behavior, and personality characteristics.
- 3321. ADOLESCENT DEVELOPMENT.** (3 cr, §3331; prereq 1003)  
Physical, intellectual, social, and emotional changes characterizing transition from childhood to adult life.
- 3331. DEVELOPMENTAL PSYCHOLOGY.** (5 cr, §3311, §3321; prereq 1003; nonmajors only)  
Major processes involved in human development from conception to death. Topics to include a survey of theoretical and methodological issues in the study of the individual, a comprehensive view of development during the period of most rapid growth, a perspective on problems arising at different stages of development by tracing their origin.
- 3341. PSYCHOLOGY OF AGING AND ELDERLY.** (3 cr; prereq 1003)  
Psychological factors involved in aging; services for the aging as a result of the Older American Act of 1965; educational opportunities for senior citizens based on state law; and, the organization, coordination, and administration of various kinds of homes and programs for the aged on the local level.
- 3531. MENTAL HYGIENE.** (3 cr; not open to fr, soph; prereq 1003)  
Study of nature of the healthy personality, patterns of maladjustment, and extent of mental health problems. Consideration of the relationship between our culture and psychological adjustment.

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- 3611. LEARNING AND CONDITIONING.** (3 cr; limited to majors or minors in psychology or #; prereq 6 cr in psychology numbered 3000 or above)  
Basic principles of learning and conditioning; discussion of learning theories from historical, philosophical, and experimental aspects.
- 3661. PSYCHOLINGUISTICS.** (4 cr; prereq 3021, 3611 or #)  
Introduction to linguistic analysis, basic theories of language, the relationship between thought and language, acquisition of language, and other topics related to the theory and application of the psychology of language.
- 3701. PSYCHOLOGY IN PERSONNEL WORK.** (3 cr; prereq 1003)  
Introduction to contributions of the field of psychology to modern personnel work, including testing, selection, merit rating, training, counseling, facilitating environments, and morale.
- 3704. INDUSTRIAL AND BUSINESS PSYCHOLOGY.** (3 cr; prereq 1003)  
Factors affecting business and industrial work efficiency, including hours of work, safety, training, fatigue, and monotony; introduction to human engineering and an emphasis on contemporary concepts in the area of motivation. Introduction to selected theories related to motivation and organization.
- 3707. ORGANIZATION PSYCHOLOGY.** (4 cr; prereq 3701, 3704)  
Fitting organizations to people: behavioral science-based criteria of organization effectiveness, organization theories, approaches to person/organization goal achievement; structures, communication networks, leadership theories/styles; climate; reward systems; external community relations and influences.
- 3811. BASIC STATISTICAL METHODS.** (5 cr; prereq 1003 and 1½ yrs high school algebra or equiv)  
Includes descriptive statistics, introduction to correlational analysis and regression, sampling techniques and statistical inference; applications of simple analysis of variance and chi square in the behavioral sciences.
- 3821. PSYCHOLOGICAL MEASUREMENT.** (3 cr; prereq 3811 or #)  
Study of selection, preparation, administration, and interpretation of psychological tests and diagnostic devices, with emphasis on sources of tests of intelligence, aptitude, achievement, personality, and interest; criteria for their evaluation, methods of scoring, and interpretation; preliminary consideration of theories of reliability and validity of measurements.
- 3950. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr]; prereq #)  
Opportunities for advanced students to concentrate study on common problems in psychology.
- 3960. SPECIAL TOPICS IN PSYCHOLOGY.** (Cr ar; prereq #)
- 3970. RESEARCH IN PSYCHOLOGY.** (Cr ar [may be repeated for a max of 6 cr]; limited to majors and minors in psychology; prereq #)  
Intensive independent research on problem chosen by student; term paper required.
- 3977. HONORS RESEARCH IN PSYCHOLOGY.** (Cr ar [may be repeated for a max of 3 cr]; prereq sr major in psychology, approval by psychology faculty, 3.00 GPA overall and 3.25 in psychology)  
Individual research (advanced) in selected areas; oral examination upon completion.
- 3980. PREPROFESSIONAL FIELD PLACEMENT.** (Cr ar [may be repeated for a max of 15 cr]; prereq sr major in psychology and Δ)  
A supervised experience in a human services organization. Curriculum requirements dependent on placement.
- 3990. PROJECTS IN PSYCHOLOGY.** (Cr ar [may be repeated for a max of 6 cr]; limited to majors and minors in psychology; prereq #)  
Supervised practical experience in University or community activities for the purpose of gaining experience in applications of psychology; report required.
- 3997. HONORS PROJECTS IN PSYCHOLOGY.** (Cr ar [may be repeated for a max of 3 cr]; prereq sr major in psychology, approval by psychology faculty, 3.00 GPA overall and 3.25 in psychology)  
Individual projects (advanced) demonstrating applications of psychology based on sound theoretical and research foundations; written report and oral examination.
- 5991. DIRECTED INSTRUCTION.** (1 to 4 cr [may be repeated for a max of 6 cr]; prereq #)  
Experience in teaching psychology under supervision. Students work with department faculty members in planning and helping to teach an undergraduate course.

## READING (Rdng)

(CE)

- 1119. READING AS HUMAN BEHAVIOR.** (2 cr)  
An introduction to the linguistic and psychological aspects of reading as human behavior.

- 1120. READING TUTORIAL PROJECT.** (1-2 cr [may be repeated for a max of 6 cr]; prereq 1119 or ¶1119 and #)  
Supervised tutoring of elementary, secondary, or college students or adults who have difficulty learning academic material through reading.

## RECREATION (Rec)

(CE)

- 1206. FALL OUTDOOR RECREATION.** (2 cr, \$PE 1206)  
Instruction and practice in the skills of fall camping and outdoor activities. Includes hunting, fishing, and hiking.
- 1207. WINTER OUTDOOR RECREATION.** (2 cr, \$PE 1207)  
Instruction and practice in the skills of winter outdoor recreational activities, including snowshoeing, cross-country skiing, ice fishing, and camping.
- 1208. SPRING OUTDOOR RECREATION.** (2 cr)  
Instruction and experience in the skills of spring outdoor recreational activities: canoeing, fishing, camping, hiking.
- 1900. OUTDOOR RECREATION TOPICS I: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 6 cr], \$PE 1900; prereq #)  
Topics are selected from the area of outdoor recreation to meet the needs and interests of upper level students. Topics may vary each time the course is offered.
- 3100. RECREATION AND LEISURE.** (3 cr)  
An introduction to the field of recreation and leisure services. Designed for persons interested in recreation and leisure services.
- 3300. RECREATION AND LEISURE PROGRAMMING.** (3 cr)  
Designing and evaluating recreation and leisure programs.
- 3310. RECREATION AND LEISURE LEADERSHIP.** (3 cr)  
A practical and theoretical view of practices, methods, and processes involved in leadership development including a detailed analysis of the qualities and roles of leaders and supervisors of recreation and leisure activities.
- 3315. RECREATION MANAGEMENT.** (3 cr)  
An analysis of the administrative process and legal basis of personnel management, fiscal management, and facility management.
- 3320. RECREATIONAL INTRAMURALS.** (3 cr)  
A theoretical study regarding the organization and administration of school recreation programs.
- 3330. OUTDOOR RECREATION.** (3 cr)  
An overall view of outdoor recreation with special emphasis on northern Minnesota.
- 3331. CAMPING.** (3 cr)  
Theoretical and practical knowledge regarding the organization and management of camps.
- 3350. RECREATION PRACTICUM.** (3 cr)  
Involvement in recreation through a practical experience.

## RUSSIAN (Russ)

(CLS)

(Foreign Languages and Literatures Department)

- 1101-1102-1103. BEGINNING RUSSIAN I-II-III.** (5 cr each; offered when feasible)  
Grammar; reading; conversation.

## SAFETY (Safe)

(CE)

(Department of Industrial and Technical Studies)

- 5000. PRINCIPLES, PRACTICES OF ACCIDENT PREVENTION.** (2 cr; not available for Graduate School cr; 2 hrs lect)  
The development of the safety movement as related to the causes and reduction of accidental death and injury; provides a background useful in handling problems and procedures of occupational, school, community, and transportation related safety; implications for research in modern living.



## Course Listings

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- 5001. OSHA VOLUNTARY COMPLIANCE.** (3 cr; not available for Graduate School cr; 3 hrs lect)  
An overview of voluntary compliance with the provisions of the federal Occupational Safety and Health Act. Specifically designed to recognize the more critical health and safety violations and provide guidelines for correcting hazards that exist in the workplace.
- 5002. SAFETY AND HEALTH STANDARDS, CODES AND REGULATIONS.** (3 cr; not available for Graduate School cr; prereq 5001 or #: 3 hrs lect)  
Study of occupational safety and health standards and codes and regulations with particular emphasis on application to typical work situations.
- 5003. LEGAL IMPLICATIONS IN SAFETY.** (2 cr; not available for Graduate School cr; prereq 5000 or #: 2 hrs lect)  
Federal, state, and local laws and judicial interpretations that have applications to safety programs including tort liability and insurance, and corporate responsibility in product safety.
- 5004. ORGANIZATION, ADMINISTRATION OF SAFETY PROGRAMS.** (3 cr; not available for Graduate School cr; prereq 5001, 5002 and #: 3 hrs lect)  
Study of current administrative practices that specifically relate to organizing and managing a modern safety program. Actual involvement in the design and development of safety programs suitable for an industrial facility.
- 5005. SITUATIONAL ANALYSIS, STATISTICAL TECHNIQUES.** (3 cr; not available for Graduate School cr; prereq 5000 and 15 cr in industrial safety; 3 hrs lect)  
A philosophical examination of situations relative to accident prevention and the statistical techniques involved in the presentation and analysis of factual data.
- 5100. INDUSTRIAL FIRST AID.** (2 cr; not available for Graduate School cr; prereq Standard First Aid Certificate or #)  
Principles of first aid as related to industrial accident prevention with emphasis on knowledge, skills, and judgments. Leads to the American Red Cross Standard First Aid Instructor's Rating.
- 5101. HEARING CONSERVATION.** (3 cr; not available for Graduate School cr)  
Provides the theory, principles, and methods for the management of noise to meet the criteria of federal, state, and local legislation and the requirements of insurance underwriters relative to the employer's responsibility for employee hearing conservation.
- 5102. INDUSTRIAL TOXICOLOGY.** (2 cr; not available for Graduate School cr)  
The effects of toxicants, OSHA-regulated substances, social prescriptions and illicit psychoactive chemicals on human health, human productivity, and the natural environment. Ceilings and threshold limits, industrial wastes and disposal, mode of transmission, general effects and methods of determination will be emphasized. EPA regulations will be considered as well.
- 5104. FIRE PREVENTION AND CONTROL.** (2 cr; not available for Graduate School cr; 4 hrs lect-lab)  
Study of the essentials for fire inspection and investigation; the prevention of undesired fires; the fundamentals of fire extinguishment; and the control of wildfires. Directed group and individual field practice in the extinguishment of fires.
- 5105. EMERGENCY PLANNING, PREPAREDNESS.** (2 cr; not available for Graduate School cr; 2 hrs lect)  
The planning, organization, and implementation phases of survival techniques, and the repair-restoration necessary in the event of natural or man-caused disasters.
- 5106. PHYSICAL HAZARD CONTROL.** (2 cr; not available for Graduate School cr; 4 hrs lect-lab)  
An examination of physical hazards in the work environment and methods of control. Emphasis on recognition of common hazards found in industry and design of corrective measures.
- 5107. INDUSTRIAL VENTILATION.** (2 cr; not available for Graduate School cr; 4 hrs lect-lab)  
Study of industrial ventilation systems used to control dust, fumes, gases, vapors, and mists that are found in the workplace. Emphasis on detection and evaluation of hazard areas and design of corrective systems.
- 5110. CONSTRUCTION SAFETY.** (2 cr; not available for Graduate School cr; 4 hrs lect-lab)  
Study of OSHA regulations as they apply to the construction industry.
- 5111. TRAFFIC AND FLEET SAFETY.** (2 cr; not available for Graduate School cr; 2 hrs lect)  
An overview of traffic and highway safety problems including highway design, traffic control, and regulation. In- and out-of-building vehicle and pedestrian traffic control with special emphasis on fleet safety programs.
- 5112. ELEMENTS OF INDUSTRIAL HYGIENE.** (2 cr; not available for Graduate School cr; 2 hrs lect)  
Introduction to the field of industrial hygiene. A survey of the effects of chemical, physical, and biological agents on the body, and typical methods of control.
- 5900. INTERNSHIP IN INDUSTRIAL SAFETY.** (1-5 cr; not available for Graduate School cr; prereq 5004, admission to candidacy for degree)  
A cooperative internship in an industrial, governmental, or other agency that has an established safety program or is in the process of safety program implementation.
- 5901. PROBLEMS IN INDUSTRIAL SAFETY.** (1-5 cr; not available for Graduate School cr; prereq 5005, admission to candidacy for degree)  
Special investigation of an approved problem in industrial safety.

## SOCIAL WORK (SW)

## (SSD)

- 1109. HUMAN SERVICE LABORATORY.** (3-6 cr [1-2 cr per qtr] with enrollment required for entire academic yr; prereq Psy 1103, Soc 1100, or #)  
A supervised experience working in some area of the human services. Students may serve a big brother or sister role with a child or perform some other similar activity that enables them to participate in a helping role in society. Small-group seminar conducted concurrently.
- 1130. DEVELOPMENT OF HUMAN SERVICES.** (4 cr)  
Overview of the development of human services in the United States with comparisons to human services in other nations. Examination of the historical context in which human services programs develop and variation in ideological and organizational approaches to human service delivery. Current issues in the delivery of both financial and other human services will be analyzed in relation to their historic and value contexts.
- 3307. THE CORRECTIONAL CONTINUUM.** (5 cr; not open to students having completed both 3306 and 3308; prereq 1130 or Soc 3302 or Soc 3304)  
Emerging and traditional correctional theories and programs, including recent developments in community-based programming, such as diversion and restitution. Issues of goals, costs, effectiveness, public safety, and human rights.
- 3310. SOCIAL DEVELOPMENT.** (4 cr)  
General concepts and orientation of social development; value bases underlying social development; importance of the change agent's and the client's values in implementing social development approaches; contrast of social development perspective with that of casework and group work.
- 3320. DYNAMICS OF CHANGE.** (4 cr; prereq BSD program or #)  
Group interactional processes insofar as they relate to effecting change at a level defined as social development. Students will practice diagnosing group process, making process interventions from the perspective of social development. Skills relating to public relations, and methods of developing indigenous leadership will also be emphasized.
- 3330. RESEARCH I.** (4 cr; prereq Math 3565 or equiv or #)  
An introductory course in social research, emphasizing basic research design, sampling, measurement, data collection techniques, and introduction to problems of the evaluation of social programs.
- 3331. RESEARCH II.** (4 cr; prereq 3330)  
Continuation of 3330 but emphasizing data processing techniques, including Statistical Package for the Social Sciences computer techniques, and the analysis and interpretation of data.
- 3350-3450. FIELDWORK I AND II.** (1-8 cr each [each may be repeated for a max of 8 cr]; prereq 1109 and regis in BSD program)  
Field placements during the junior and senior years. Students will be placed in at least two kinds of projects, programs, or agencies for 2 to 6 quarters. Placements will be chosen to provide experience (a) with grass roots initiated programs and with governmental or traditional programs, and (b) with programs focusing on individuals and small groups and with programs directed to larger system (community, interagency, or regional) problems, so as to provide experiences both with direct services and with the political, administrative, and planning aspects of social development. The direct service experiences should be taken first, but this will depend upon available placements and resources in any year.
- 3400. SOCIAL POLICY AND PLANNING.** (4 cr; prereq 3310 or #)  
Analysis of specific contemporary policy issues and policy formulation in areas such as income maintenance, housing, and Native American issues. Students will define and generate solutions to problems through study of planning models and planning simulations.
- 3501. TOPICS IN PROGRAM DEVELOPMENT.** (1-5 cr [may be repeated for a max of 10 cr]; prereq #)  
A project-oriented course in program development in small agencies, especially minority agencies, institutional alternatives, and specialized services. Emphasis upon specific skills for planning, developing, maintaining, and evaluating community human service programs.
- 3700. PROJECTS IN SOCIAL DEVELOPMENT.** (1-6 cr [may be repeated for a max of 6 cr]; prereq 16 cr in upper division social development courses, and #)  
Students may, with the approval of the adviser and field coordinator, take from 1 to 6 credits in social development projects in community organization, research, social services administration, social policy, and social planning. Projects selected by students may be elected in close coordination with another course in the curriculum or may be in an area of interest independent of any course being offered at the time.
- 5100. THEORY, PHILOSOPHY OF SOCIAL DEVELOPMENT.** (5 cr; prereq grad standing or #)  
Historical development and theoretical bases of the concept; inherent philosophical assumptions and ethical implications of implementation.
- 5105. HUMAN BEHAVIOR IN SOCIAL DEVELOPMENT.** (3 cr; prereq grad standing or #)  
An overview of theories and skills related to human behavior (individuals and small groups) and how it relates to the macrointervention focus of social development.

## Course Listings

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- 5110. ECONOMIC BASES OF SOCIAL DEVELOPMENT.** (5 cr; prereq 5100 or #)  
Study of concepts and analytical tools relating to economic growth and development and their applicability to the study of social policy making and programming; an analysis of public expenditure on social development; investment in human capital. The course will focus on identifying resource constraints and economic feasibility in social development planning.
- 5131, 5133. SPECIAL TOPICS IN SOCIAL WORK.** (3-5 cr each [may be repeated for a max of 10 cr]; prereq #; offered when feasible)  
A proseminar on contemporary topics of concern to students and faculty. Specific course content will be announced in *Class Schedule*.
- 5200. SOCIAL POLICY ANALYSIS.** (5 cr; prereq 5100 or #)  
A study of conceptual frameworks for the analysis of social development policies; role of social policy in income distribution, decision participation, and national integration; translation of social policies into programs and services, and feedback. Main focus will be on the analysis of social policies for making contributions to their development, modification, and reformulation.
- 5205. SOCIAL POLICY DEVELOPMENT.** (5 cr; prereq 5100 or #)  
An historical study of the dynamics of social policy development in American political and social systems; socioeconomic and political correlates of policymaking in different areas; various policy systems and the role of policymakers including interest groups, public bodies, and nongovernmental agencies; power structure and social policy decisions; selected case studies.
- 5210. SOCIAL PLANNING.** (5 cr; prereq 5100 or #)  
Social planning as related to developmental planning. Study of planning methodology as adapted in different countries; the planning process—implementation and evaluation. Students will define and generate solutions to problems through study of planning models and planning simulations.
- 5215. DYNAMICS OF VOLUNTARISM.** (3 cr; prereq 1130 or #)  
Designed for those who wish to more effectively utilize volunteer help in social programs. Exploration of theories of voluntarism, volunteers' motivations, recruitment and training of volunteers, uses of volunteer help, and new trends in voluntarism, such as the power of volunteers organized to influence legislation and agency policy.
- 5227. RURAL DEVELOPMENT.** (4 cr; prereq 3310, or Soc 3180, or #)  
Examination of rural-urban differences internationally and within the U.S. Emphasis on rural development problems and needs, and strategies to facilitate development objectives.
- 5230. INDIANS AND JURISDICTIONAL PROBLEMS.** (5 cr; prereq Soc 1100 or Pol 1011 or #)  
Study of federal, state, and county jurisdictional conflicts as they affect delivery of services to Native Americans. Policy and program alternatives for Indian communities.
- 5239. INDEPENDENT STUDY IN SOCIAL WORK.** (Cr ar [max of 5 per qtr...may be repeated once for a max of 10 cr]; prereq social development jr or sr major or grad standing, and Δ)  
Directed reading, research, or other experiences, leading to presentation of report.
- 5240. PLANNING SERVICES TO THE AGING.** (3 cr; prereq 3400 or 5210 or #)  
Examination of the development, content, and organization of social programs and policies specifically designed for older adult populations. Emphasis will be given to program and planning issues and implications of recent national and state legislation.
- 5245. PLANNING OF CRIMINAL JUSTICE SERVICES.** (5 cr; prereq 3400 or 5210 or Soc 1300 or #)  
Planning for development of criminal justice services; interaction of federal, state, local governments and nongovernmental agencies in provision of criminal justice services; involving various elements and interests of the criminal justice system in planning role of citizens and consumers; issues of multiple goals.
- 5250. CRIME VICTIMS AND SOCIAL POLICY.** (3 cr; prereq 3400 or 5200 or Soc 1300 or #; offered when feasible)  
Conceptual framework for victimology; analysis of theory and research relating to issues of victim vulnerability and victim culpability; systems of reparation including restitution and victim compensation schemes.
- 5260. SOCIAL ASPECTS OF HEALTH SERVICE DELIVERY.** (3 cr; prereq #)  
The potential for greater coordination and integration of health and social services will be explored. National, regional, state, and local health planning and legislation will be analyzed in the light of their social impact. Relevant social-health issues (national health insurance, drug abuse, etc.) will be discussed and analyzed.
- 5265. PLANNING COMMUNITY MENTAL HEALTH SERVICES.** (3 cr; prereq 3310 or 5100 or #)  
Analysis of current trends and issues in community mental health, particularly the problems and potential of deinstitutionalization of state hospitals; strategies for planning and delivering mental health services; techniques by which mental health practitioners can function effectively in relation to the community.



- 5270. WOMEN AND SOCIAL POLICY.** (3 cr; prereq 5100 or #)  
Examination of policy issues related to women in areas such as day care, rape, employment, education, abortion, etc. Emphasis on how existing social policies impact upon women. Analysis of organizational and planning strategies as a means to pass legislation and to develop policies/programs to meet women's needs. Cross-cultural comparisons will be made where relevant.
- 5300. SOCIAL STRUCTURE, COMMUNITY ORGANIZATION.** (5 cr; prereq 3310 or 5100 or #)  
Examination of the interrelationships among various social systems and their implications for community organization. Organizing strategies for influencing these systems (family, neighborhood, community, or formal organization) will be examined in terms of the objectives of social development.
- 5400. HUMAN SERVICES ADMINISTRATION.** (4 cr; prereq 3310 or 5100 or #)  
Theory and practice of social welfare administration; bureaucratic models, interorganizational relations, developing organizational objectives, management skills, service programming and implementation, governmental relations, funding, budgeting, use of information systems.
- 5501. DEVELOPMENT OF INTERNATIONAL SOCIAL SERVICES.** (3 cr; prereq 3310 and #)  
The major aspects of the development of international social services, including private-national, private-international, and public-international agencies.
- 5504. HUMAN SERVICE PROGRAM EVALUATION.** (5 cr; prereq 3331 or regis in MSW program or #)  
Research design and the process of conducting human service program evaluations; types of evaluations, identification of program objectives, operationalizing and measuring of program effects, the administrative-political-ethical context of program evaluation, critical analyses of published program evaluation studies.
- 5505. DATA COLLECTION AND ANALYSIS.** (5 cr; prereq Math 3561 or equiv or #)  
The development of valid and reliable research instruments; planning for data analysis: levels of measurement, reduction of information to quantitative form, use of SPSS computer programs, tabular analysis for antecedent, extraneous and intervening variables, uses of significance tests, selected special analysis techniques.
- 5510. QUALITATIVE METHODOLOGY.** (5 cr; prereq 3330 or grad standing or #)  
Emphasis on qualitative data-gathering techniques. Application of such techniques to social development settings such as local communities.
- 5600. GROUP FACILITATION.** (3 cr; prereq regis in BSD or MSW program or #)  
Theory and application of process facilitation in task-oriented work groups. Study and development of leadership roles in facilitating group processes in various social development task groups; e.g., facilitating advisory board meetings, staff meetings, community based planning meetings, etc. This course will not deal with group "therapy"; i.e., group process as applied to treating individual problems.
- 5610. INTERGROUP CONFLICT RESOLUTION.** (3 cr; prereq 3310 or 5100 or Soc 1100 or #; offered when feasible)  
Overview of theories of social conflict; application of theory to analysis of common conflicts such as labor-management, student-university, racial and religious groups, etc.; major emphasis is on strategies for creative conflict resolution.
- 5801. PERSONAL AND PROFESSIONAL GROWTH.** (3 cr; prereq jr status or #)  
This course is designed to help professionals in social development or related people helping professions to understand and resolve tension and the ambiguities between one's personal identity and one's professional role.
- 5911. WORKSHOP: (Various Titles To Be Assigned).** (1 to 5 cr each offering [no more than a total of 6 cr can be applied to a Graduate School program])  
A workshop on a topic of special concern to persons in the human services.
- 8104. CONTEMPORARY PERSPECTIVES ON PLANNED SOCIAL CHANGE.** (3 cr; prereq 5100 or #)  
A typology of social change efforts based on an analysis of their divergent root assumptions about values and the nature of reality rather than a categorization of their various activities. A comparison of three perspectives of planned social change: the "professional-technical," the "political," and the "countercultural."
- 8240. SELECTED ISSUES IN NATIONAL POLICY.** (3 cr; prereq 5200 or #; offered when feasible)  
A proseminar on analysis of selected national policy issues. General topical area will be announced prior to each offering of the course.
- 8260. REGIONAL PLANNING AND DEVELOPMENT.** (5 cr; prereq 5210 or #)  
Social planning and development at the regional level. Economic, political, and social forces involved in shaping policies and programs for social development. Analysis of social policy issues facing developing regions; examination of alternative strategies and tactics for dealing with them.
- 8320. COMMUNITY DEVELOPMENT, POPULAR PARTICIPATION.** (5 cr; prereq 5300 or #)  
Community development as a method, field and movement, nationally and internationally. It will assess its potentialities as a strategy of planned intervention and examine the need and scope of popular participation in bringing about social change.

## Course Listings

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**8330. SOCIAL ACTION STRATEGIES.** (3 cr; prereq 5300 or #)

A study of specific strategies for mobilizing grass roots citizens groups and utilizing their power to effect system change. There will be a focus on both evaluation of strategies and tactics and on how to implement these in real-life situations.

**8340. INTERORGANIZATIONAL ANALYSIS.** (3 cr; prereq 5300 or #)

Theories of interorganizational behavior; issues of service coordination and delivery; models of service integration.

**8401. PROSEMINAR IN THEORY AND PRACTICE OF SOCIAL INTERVENTION.** (3 cr)

An integrative seminar designed to assist students in relating social development theory with practice and generalize from the particular, with attention to limitations in such a process. It will provide a forum in which students from a variety of projects may share their learning with each other. It is also intended to serve the transition function of helping students to move from the academic world into professional practice by directing their continuing professional growth needs into plans for self-directed professional development.

**8402. SOCIAL DEVELOPMENT SYMPOSIUM.** (3 cr)

The object of this symposium is to provide second-year graduate social work students with an opportunity to review in depth their exploration of regional and national development. Students are expected to utilize their previous study of economic, political, and socio-cultural factors as these relate to social development.

**8500. DIRECTED STUDY.** (3 cr)

For students who will be doing social research or critical study within their individual or group project, in an original scholarly endeavor consisting of library research, field research, or the relationship of the project practicum to the social research topic. A panel of academic staff and student personnel will be available to assist each student in the preparation of the report to be submitted at a later time.

**8502. ISSUES IN SOCIAL POLICY.** (3 cr)

A proseminar on contemporary issues in social policy related to community development. Specific topical area will be announced prior to each offering of the course.

**8503. ORGANIZATIONAL CHANGE.** (3 cr)

The structure and dynamics of formal organizations, with special attention to interorganizational behavior and to planned change processes in organizations.

**8520. PROGRAM EVALUATION SEMINAR.** (3 cr; prereq 5504 or #)

An advanced seminar for exploration of problems or program evaluation research, including identification of variables, design, utilization of findings, use of management information systems, issues of reliability and validity, and use of social indicators.

**8530. SOCIAL INDICATORS.** (3 cr; prereq 5505 or #)

This course will be an in-depth study of social indicators—their significance and limitations for planning and evaluation; study of the various efforts made at formulating social indicators, and learning of research and statistical skills for identifying and measuring such indicators.

**8650-8651†. SKILL DEVELOPMENT WORKSHOPS.** (2 cr each; prereq 30 cr toward MSW, †8750 required for 8650 ...†8751 required for 8651)

Developments of skills in community organization, research, administration, social policy, and social planning. Emphases will be on those skills that students most need in their field projects. Intensive workshop format will be utilized to accommodate those students engaged in projects outside the Duluth-Superior area.

**8700. SPECIAL PROJECTS IN SOCIAL DEVELOPMENT.** (1-10 cr [may be repeated for a max of 10 cr])

Students may, with the approval of the adviser and field coordinator, take from 1 to 10 credits in social development projects in community organization, research, social services, administration, social policy, and social planning. Projects selected by students may be elected in close coordination with another course in the curriculum or may be in an area of interest independent of any course being offered at the time.

**8750-8751†. FIELD PROJECT.** (13 cr each; prereq 30 cr toward MSW, †8650 required for 8750...†8651 required for 8751)

Internship-practicum experiences in working with community groups and bureaucratic systems on problems in community organization, research, administration, social policy, and social planning. Projects are selected and designed by students to continue over 2 consecutive quarters of the curriculum. The project planning includes learning and production outcomes; knowledge and value areas as well as skills; mutual responsibilities of the student, faculty, and organization consultant; and evaluation criteria and procedure.

**SOCIOLOGY (Soc)****(CLS)**

- 1100. PROBLEMS OF AMERICAN SOCIETY.** (5 cr; cr may not be applied toward sociology-anthropology major or minor)  
Application of the sociological perspective to social problems within the United States.
- 1150. PRINCIPLES OF SOCIOLOGY.** (2 cr)  
An examination of sociological concepts with the emphasis on building the sociological vocabulary and conceptual capabilities of prospective sociology majors.
- 1200. INTRODUCTION TO THE FAMILY.** (4 cr)  
A study of the changing roles of the sexes in paired personal relationships more traditionally referred to as mate selection, courtship, marriage, and the process of family formation, maintenance or dissolution, as well as alternative family forms.
- 1250. TOPICS IN SOCIOLOGY.** (1-5 cr; for nonmajors only; prereq 1100 or #)  
A minicourse experience for the non-sociology major dealing with topics of current general interest.
- 1300. INTRODUCTION TO CRIMINAL JUSTICE.** (4 cr)  
An analysis of social justice with emphasis on the criminal justice system in the U.S. The purpose of the course is to expose students to various roles and relationships of agencies in the criminal justice system.
- 1400. SOCIAL INQUIRY I.** (5 cr; prereq major or #)  
An approach to problem solving using sociological concepts, research methods, and data analysis.
- 1410. SOCIAL INQUIRY II.** (5 cr; prereq 1400 or #)  
An approach to problem solving using sociological concepts, research methods, and data analysis.
- 3121. FIELD EXPERIENCE.** (Cr ar [may be repeated for a max of 15 cr]; prereq sociology major or minor and #)  
A supervised laboratory experience in a human service agency or project.
- 3170. GENERAL SOCIAL PSYCHOLOGY.** (4 cr; for nonmajors only; prereq 1100 or #)  
Explanation of behavior as a result of social system, individual and interaction variables. Attention is given to examples and issues useful for students majoring in areas other than sociology.
- 3180. COMMUNITY AND SOCIAL ORGANIZATION.** (4 cr; for nonmajors only; prereq 1100 or #)  
An examination of community and societal structures and processes with specific attention given to the functioning of voluntary associations and complex organizations.
- 3190. CURRENT SOCIAL ISSUES.** (4 cr; for nonmajors only; prereq 1100 or #)  
Application of sociological theory and research to current topics; analysis of community life, social movements, and social conditions.
- 3304. THEORIES OF CRIME AND DELINQUENCY.** (5 cr; prereq 1300, 1410 or #)  
An examination of the theories of causation of crime and delinquency. The relationship of causation and prevention at various stages in the criminal justice system will be stressed.
- 3310. SOCIOLOGY OF CRIMINAL LAW.** (4 cr; prereq 3304)  
The nature, goals, and problems of the administration of the American criminal judicial process.
- 3318. POLICE-COMMUNITY RELATIONS.** (4 cr; prereq 3304)  
Exploration of the relationship of police and community with primary focus on police responsibility to the community, community responsibility to the police, and public relations procedures.
- 3420. DEVELOPMENT OF SOCIOLOGICAL THEORY.** (4 cr; prereq 1410 or #)  
Theoretical perspectives in sociology from early 19th century to the present; examination of several major theorists central to the development of the discipline.
- 3700. SOCIAL PSYCHOLOGY.** (4 cr, §3170; prereq 3420 or #)  
Theory and research issues regarding relation of individual to society. Emphasis on socialization, the effects of social organization and disorganization, and interpersonal interaction.
- 3732. SOCIAL PSYCHOLOGY TOPICS.** (1-5 cr [may be repeated for a max of 10 cr]; prereq 3700 or #)  
An examination of social psychology topics identified through student-faculty consultation.
- 3830. SOCIOLOGY OF COMMUNITY.** (4 cr, §3180, §3800; prereq #)  
The organization and structure of social systems as affected by economic and demographic factors involved in community formation and change. The place of community within society will be examined. Students will participate in the development of a community questionnaire to be used in Soc 5820, Community Research.
- 3842. SOCIAL ORGANIZATION TOPICS.** (1-5 cr [may be repeated for a max of 10 cr], §3840; prereq 3800 or #)  
An examination of specific community and social forms and processes identified through student-faculty consultation.
- 3850. COMPLEX ORGANIZATION.** (4 cr; prereq #)  
Sociological examination of the structure and processes of public and private bureaucracies and the patterns of adaptation by bureaucracies to their external social environments.



## Course Listings

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- 3900. SOCIAL ISSUES AND SOCIAL CHANGE.** (4 cr; §3190; prereq 3420 or #)  
An analysis of the forces of social change and social issues as they affect social life. Emphasis is placed upon the use of social theory and research in comprehending the dynamics of issues and change.
- 3912. ISSUES AND CHANGE SPECIAL TOPICS.** (1-5 cr [may be repeated for a max of 10 cr], §3910, §3912; prereq 3900 or #)  
An examination of social issues and changes identified through student-faculty consultation. Students and faculty members in joint consultation will have the opportunity to select specific topics.
- 3942. THE SOCIOLOGY OF MINORITY GROUPS.** (4 cr; prereq 3900 or 3190 or #)  
Interaction of social and cultural groups in the U.S.; ethnic and cultural group adjustments and patterns; background of prejudice; review of data on American and international minorities; and an examination of solutions to social issues that arise because of intergroup activities.
- 3944. POPULATION STUDIES.** (4 cr; prereq 3900 or 3190 or #)  
Cultural and social factors in the dynamics of human populations. The focus of the course may be directed toward specific issues such as the environment, third world or industrial nations.
- 5115. RURAL COMMUNITY ANALYSIS.** (3 cr; prereq #)  
For prospective rural teachers, social workers, and extension workers; emphasis on methods of making field studies of communities.
- 5120. INDEPENDENT STUDY IN SOCIOLOGY.** (Cr ar [may be repeated for a max of 5 cr]; prereq △)  
Directed reading, research, or involvement in social action leading to the preparation of a paper or other project.
- 5140. MEDICAL SOCIOLOGY.** (4 cr; prereq #)  
Examination of the social character of illness, the profession of medicine, the organization of medical care, and social environments and disease.
- 5150. THE FAMILY.** (4 cr; prereq #)  
Evolution of the family; development of family unity or disunity, roles of the several members of the family, methods of investigation of the family.
- 5160. SOCIOLOGY OF EDUCATION.** (4 cr; prereq #)  
Social structure of the school; the classroom as a social system; analysis of educational roles; impact of social classes on education; school and community power structure.
- 5170. URBAN SOCIOLOGY.** (4 cr; prereq #)  
Cities; urban ecology; urban institutions; and urban way of life.
- 5181, 5182, 5183. SPECIAL TOPICS.** (1-5 cr each [any combination of these courses may be repeated for a max of 12 cr; no more than a total of 6 cr can be applied to a Graduate School program], §5180, §5185, §5190; prereq #; offered when feasible)  
A seminar on contemporary topics in sociology. Specific course content will be announced in *Class Schedule*.
- 5300. CRIMINAL JUSTICE SYSTEM ANALYSIS.** (5 cr; prereq 1300, 3304 or #)  
The criminal justice system and its operation, with an emphasis on the interrelationships among roles and structures and the degree of integration of the police, prosecution, courts, and corrections subsystems.
- 5710. COLLECTIVE BEHAVIOR.** (4 cr; prereq 3700 or #)  
Examination of social movements as they lead to and result from social change. Specific focus on the role of the individual under conditions of social change.
- 5720. ATTITUDE AND BEHAVIOR CHANGE.** (4 cr; prereq 3700 or #)  
Examination of research and theoretical issues connected with attitude and behavior change and resistance to change. Discussion of techniques for change and related moral issues.
- 5740. THE SOCIAL PSYCHOLOGY OF DEVIANCE.** (4 cr; prereq 3700 or #)  
A social psychological approach to theories of deviant behavior, the process and consequences of labeling of deviants, deviant subcultures, and treatment programs for those defined as deviant.
- 5820. COMMUNITY RESEARCH.** (4 cr; prereq #)  
Supervised community research where faculty members and students engage in actual study of selected northern Minnesota and northern Wisconsin communities.
- 5850. RURAL SOCIAL SYSTEMS.** (4 cr; prereq #)  
Study of the structure and dynamics of rural social system with an intensive examination of the horizontal and vertical systemic linkages.

**SPANISH (Span)****(CLS)**

(Foreign Languages and Literatures Department)

- 1101-1102-1103. BEGINNING SPANISH I-II-III.** (5 cr each)  
Grammar; reading; conversation.
- 1111-1112. BEGINNING SPANISH.** (8 cr first term, 7 cr second term; offered summer only)  
Grammar; reading; conversation. Covers the same material handled in the regular first-year sequence.
- 1201-1202-1203. INTERMEDIATE SPANISH.** (3 cr each; prereq 1103)  
Review of grammar. Improvement of proficiency in language skills.
- 1211-1212. INTERMEDIATE SPANISH.** (5 cr first term, 4 cr second term; offered summer only)  
Review of grammar. Improvement of proficiency skills. Covers the same material handled in the regular intermediate sequence.
- 3121-3122-3123. ADVANCED SPANISH.** (4 cr each; prereq 1203)  
Composition; conversation; grammar; reading.
- 3152. PHONOLOGY, MORPHOLOGY, AND SYNTAX.** (4 cr; offered alt yrs)  
Applied Spanish linguistics for the learner and teacher.
- 3505. SPANISH POETRY.** (4 cr; prereq 1203; offered alt yrs)
- 3511. LITERATURE IN TRANSLATION.** (4 cr; students may substitute Engl 3511, Fr 3511, or Ger 3511 for Span 3511 in selecting electives)  
Reading of Spanish literature in translation.
- 3533. CERVANTES IN TRANSLATION.** (4 cr; offered alt yrs)  
A study of Cervantes' major work, *Don Quixote*.
- 3534. GOLDEN AGE LITERATURE.** (4 cr; prereq 1203; offered alt yrs)  
Picaresque novel, theatre, and poetry of the "Golden Age."
- 3550. 18TH- AND 19TH-CENTURY LITERATURE.** (4 cr; prereq 1203; offered alt yrs)  
Prose and dramatic literature of the 18th and 19th centuries.
- 3575. MODERN SPANISH LITERATURE.** (4 cr; prereq 1203; offered alt yrs)  
Peninsular prose and drama of the 20th century.
- 3576. MODERN LATIN-AMERICAN LITERATURE.** (4 cr; prereq 1203; offered alt yrs)  
Poetry, prose, and drama of Latin America of the 20th century.
- 3997. SEMINAR.** (4 cr per qtr [may be repeated for a max of 8 cr]; prereq 1203 and #)
- Lang 0001. TRAVELER'S FRENCH/GERMAN/SPANISH.** (No cr)  
Basic pronunciation, reading of signs, and drill of everyday phrases.
- Lang 3010. DIRECTED STUDY.** (1-4 cr [may be repeated for a max of 8 cr]; prereq # and Δ)  
Students plan their program of study in conference with their instructor in an area not already covered by regular courses.
- Lang 3611. THEATRE PRACTICUM.** (2 cr; prereq Th 1110, Th 1500 and Th 3221; to be taken concurrently with Th 3661)  
The production of one-act plays in foreign language before an invited audience.
- Lang 3801. TEACHING NONNATIVE LANGUAGE.** (4 cr; prereq 24 cr of Spanish or #)  
The theory and practice of teaching basic nonnative language skills and cultural concepts at any educational level. Applicable also to teachers of English as a foreign language.
- Lang 5100. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [may be repeated for a max of 12 cr]; prereq tchg credentials in a foreign language or #; offered when feasible)  
A service course for prospective and in-service teachers providing for postgraduate study of any matters related to the teaching of a foreign language.
- Lang 5890. PROJECTS IN LANGUAGE EDUCATION.** (1-8 cr [may be repeated for a max of 12 cr]; prereq #, tchg credentials in a foreign language)  
Readings, research, materials development, classroom application, etc., that serve to enhance the teaching of a foreign language. The projects may encompass objectives, methodology, evaluation, as well as language skills and culture.

## SPECIAL EDUCATION (SpEd)

(CE)

- 1100. HELPING CHILDREN LEARN MATHEMATICS.** (4 cr)  
The content of school mathematics programs; sources of learning problems; techniques and materials to use with K-12 students experiencing learning difficulties.
- 3456. CAMP SUPERVISION OF THE HANDICAPPED.** (1 to 4 cr [may be repeated for a max of 6 cr]; prereq #)  
Outdoor camp counselor experience specific to the needs of multiply handicapped children.
- 5201. PSYCHOLOGY OF EXCEPTIONALITY.** (3 cr)  
A study of psychological factors pertaining to the major types of exceptionalty. Includes selected aspects of sensory, motor, cognitive, and social functioning.
- 5222. INTRODUCTION TO MENTAL RETARDATION.** (3 cr; prereq 5201 or #)  
Issues that relate to educational practices; community planning; educational philosophy, administration and organization, and programming.
- 5224. PROBLEMS IN MENTAL DEFICIENCY.** (3 cr; prereq 5222 or #)  
Problems of severely retarded children and adults with implications for educational and community services.
- 5226. INSTRUCTIONAL METHODS.** (3 cr; prereq 5224 or #)  
Curriculum content, materials, and methods of instruction for mentally retarded individuals.
- 5228. ADVANCED TOPICS IN RETARDATION.** (3 cr; prereq 5226 or #)  
Biomedical, psychological, and sociological problems of severe developmental disabilities.
- 5300. SPECIAL EDUCATION SEMINAR.** (1 cr [may be repeated for a max of 6 cr]; prereq #)  
Opportunity for in-depth dialogue on practices, trends, issues, and problems pertinent to the student's selected area in special education.
- 5302. DATA-BASED INSTRUCTION.** (3 cr; prereq #)  
Objective: to develop skills in instructional planning based on child performance data. Topics include behavioral statement of classroom problems; formulation, writing and utilization of instructional objectives; specification of teaching-learning procedures; and collection of student performance data in the classroom.
- 5303. TASK ANALYSIS AND INSTRUCTION.** (3 cr; prereq 5302 and #)  
Objective: to develop skills in task analysis and long-range instructional planning. Instructional sequence projects are both simulated and implemented with children.
- 5305. EXCEPTIONALITY IN THE CLASSROOM.** (3 cr; prereq 9 cr in education or psychology or #)  
Practical methods, materials, and managerial skills to assist the classroom teacher in differentiating instruction for exceptional children in the regular classroom.
- 5307. LANGUAGE BASIS FOR ACADEMIC SKILLS.** (3 cr)  
An examination of the relationship of language behavior to the acquisition of academic skills of reading, mathematics, writing, and spelling.
- 5310. WORKSHOP AND STAFFING SKILLS.** (3 cr; prereq tchg exper and #)  
Planning and implementing short-term in-service workshops for parent and teacher training. Interviewing and staffing skills for the purpose of instructional planning.
- 5311. PROGRAMMING FOR CLASSROOM PROBLEMS.** (3 cr; prereq 5310 and tchg exper or #)  
Criterion-referenced and norm-referenced testing in special education; selecting and using commercial instructional materials; developing and validating teacher-made materials.
- 5371. CLINICAL PROCEDURES WITH CHILDREN.** (3 cr; primarily for students not majoring in clinical psychology; prereq 12 cr in psychology, educational psychology, sociology, or child psychology; offered when feasible)  
Methods of clinical psychology; basic concepts and research problems in clinical work with children.
- 5400. WORKSHOP: (Various Titles To Be Assigned).** (1 to 6 cr each offering [no more than a total of 6 cr can be applied to a Graduate School program]; prereq tchg exper and #)
- 5600. SPECIAL AREA PRACTICUM.** (1-6 cr [may be repeated for a max of 12 cr]; prereq #)  
Direct observational and instructional experience with exceptional children.
- 5900. SPECIAL AREA PROJECT.** (1-4 cr; prereq #)  
Opportunity for an advanced student to undertake an independent project that would serve to substantially further either his or her theoretical knowledge base or professional competencies.



**SPEECH (Spch)****(CLS)**

- 1101. RHETORIC OF OUR TIMES.** (3 cr)  
Introduces the principles and methods of persuasion in terms of a traditional rhetorical orientation. A study of major theoretical contributions to human discourse and an investigation of recurring questions facing the user and receiver of contemporary rhetoric.
- 1104. BUSINESS SPEECH.** (3 cr; prereq major or minor in School of Business and Economics)  
Theory and practice of presentational speech for business and the professions. Emphasis on presentational speaking, presentation of self, interviewing, and productive discussion for organizational leaders, members of the professions, and managers in business and industry.
- 1111. BEGINNING PUBLIC SPEAKING.** (3 cr; prereq 1101)  
Application of the theoretical bases of rhetoric to the public speaking situation.
- 1121. ADVANCED PUBLIC SPEAKING.** (3 cr; prereq 1111)  
Preparation and delivery of the persuasive speech.
- 1202. INTERPERSONAL COMMUNICATION.** (3 cr)  
An analysis of the role communication plays in interpersonal relationships.
- 1302. MASS COMMUNICATION AND SOCIETY.** (3 cr)  
An analysis of the distinctive characteristics of the film, radio, and television media, how they are manipulated for entertainment and informational purposes, and effects of the electronic media on society.
- 1419. HISTORY OF BROADCASTING.** (3 cr; prereq 1302)  
A study of the historical evolution of radio and television systems of broadcasting in America, comparisons with international systems, and analysis of crucial issues of concern to the public, media managers, and government.
- 1432. CINEMA AND SOCIETY.** (3 cr [may be repeated for a max of 6 cr])  
An analysis of the film medium and its relationship to society. The analyses are carried out by examining a particular theme, genre, or national perspective in a series of films screened in historical sequence.
- 3101. PERSUASION.** (3 cr; prereq 1101)  
Theory and practice in modern motivational rhetoric.
- 3111. ARGUMENTATION.** (3 cr; prereq 1101)  
Theory and practice in applying reasoned discourse to analyzing and presenting problems and their solutions to audiences.
- 3112. DEBATE.** (3 cr; prereq 3111 or #)  
Theory and practice of the formal presentation of arguments relative to a question of policy.
- 3121. DISCUSSION AND GROUP METHODS.** (3 cr; prereq 1111 or #)  
Techniques of problem solving and study of communication and dynamics within small, task-oriented groups.
- 3130. HISTORY OF RHETORIC.** (3 cr, §5101; prereq 1101; offered 1978-79 and alt yrs)  
The development of rhetorical thought as expressed by representative writers.
- 3140. RHETORICAL CRITICISM.** (3 cr, §5111; prereq 1101...3130 recommended; offered 1977-78 and alt yrs)  
Problems and methods in the description, critical analysis, and evaluation of the theory and practice of rhetoric.
- 3161. SPECIAL TOPICS IN COMMUNICATION.** (1-3 cr [may be repeated for a max of 9 cr]; prereq △)  
The study of general speech-communication topics falling outside the usual speech courses. Topic will be announced prior to offering course.
- 3171. INDEPENDENT STUDY.** (1-3 cr [may be repeated for a max of 6 cr... undergraduates may not take more than 6 cr in both 3171 and 5171 combined]; prereq #)  
Directed readings and projects of interest to the student in the areas of speech-communication, communication media, or speech education.
- 3202. FOUNDATIONS OF COMMUNICATION THEORY.** (3 cr)  
An investigation of concepts and theories fundamental to understanding the process of human communication.
- 3220. INTERCULTURAL COMMUNICATION.** (3 cr)  
Examination of problems and principles of interracial, interethnic, and intercultural communication. Emphasis on verbal and nonverbal cultural differences and the effect these have on communication.
- 3231. COMMUNICATION IN ORGANIZATIONS.** (3 cr; prereq 1202 or #)  
The communication process in the modern organizational structure. Analysis of the relevant communication problems in business, industry, and education.

## Course Listings

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- 3240. INTERNSHIP IN SPEECH-COMMUNICATION.** (1-6 cr [may be repeated for a max of 9 cr]; prereq sr and △)  
The student will work in an approved program within a public agency, private business, or other organization. The program must involve the student in some aspect of communication within or initiated by the organization. Written and oral reports of the student's activities will be required. All internships must be approved by the department before being carried out.
- 3251. LITERATURE OF SPEECH RESEARCH.** (2 cr; prereq speech major/minor, jr standing)  
Analysis and evaluation of methods of historical-critical and behavioral research as described in current speech/communication literature.
- 3341. DOCUMENTARY FILM AND TELEVISION.** (3 cr; offered when feasible)  
Study of the theories and methods of using the film and television for information, persuasion, and propaganda.
- 3351. PROJECTS: BROADCASTING.** (2 cr [may be repeated for a max of 6 cr]; prereq #)  
Directed individual research projects, productions, or intern training at local broadcast stations.
- 3361. SEMINAR: COMMUNICATION MEDIA.** (3 cr [may be repeated for a max of 9 cr]; prereq #)  
Directed study, preparation, and presentation of papers or reports on subjects of current interest and importance in the areas of radio, television, and cinema. Specific subject to be announced prior to registration.
- 3402. RADIO PRODUCTION I.** (3 cr, §1401; prereq 1302, Jour 1105 and Jour 3112)  
Provides the basic learning experiences in radio production and operating practices.
- 3403. RADIO PRODUCTION II.** (3 cr, §3401; prereq 1302, 3402 or #)  
Provides advanced learning experiences in radio production and operating practices.
- 3422. TELEVISION PRODUCTION I.** (3 cr, §1425; prereq 1302 and 3402)  
Theory and application of fundamental studio techniques used in television production.
- 3423. TELEVISION PRODUCTION II.** (3 cr, §3426; prereq 1302, 3402, 3422 or #)  
Advanced learning experiences in all aspects of television production.
- 3431. CINEMA WORKSHOP.** (3 cr; prereq #; 2 hrs lect, 3 hrs lab ar)  
Producing, writing, directing, shooting, recording, and editing a motion picture.
- 3700. DIRECTING THE FORENSICS PROGRAM.** (3 cr, §5152; prereq enrollment in a BAA program)  
Analysis of the administrative and coaching responsibilities involved in cocurricular speech programs.
- 3800. PROBLEMS IN SPEECH EDUCATION.** (4 cr, §SpE 3800; prereq enrollment in a BAA program or #)  
Examination of theories and procedures in the teaching of curricular speech courses and extracurricular speech activities.
- 3880. COMMUNICATION IN THE CLASSROOM.** (3 cr; will not satisfy requirement for BAA major or minor in speech-communication; prereq jr)  
Theory and practice of effective verbal and nonverbal communication in the classroom: lecturing, questioning, discussing, listening. Survey of student speech-communication activities suitable to the classroom. Designed for prospective teachers.
- 3900. INTERN TEACHING IN SPEECH.** (3 cr [may be repeated for a max of 6 cr], §SpE 3900; prereq speech major or #)  
Practical experience in teaching of beginning courses in the department. Students will serve as intern teachers assisting the instructor in the administration of the course.
- 5161. SEMINAR: SPEECH.** (3 cr [may be repeated for a max of 9 cr]; prereq jr and △)  
Directed study and preparation of papers on subjects of current interest. Subjects to be announced prior to registration.
- 5171. INDEPENDENT STUDY.** (1-3 cr [may be repeated for a max of 6 cr ... undergraduates may not take more than 6 cr in both 5171 and 5171 combined]; prereq sr and △)  
Directed readings and projects of interest to the student in the areas of speech-communication, communication media, or speech education.
- 5900. WORKSHOP: (Various Titles To Be Assigned).** (1-6 cr [may be repeated for a max of 6 cr]; prereq △)  
A course designed to provide intensive study in various aspects of the field of speech-communication.

## SUPPORTIVE SERVICES PROGRAM (SSP)

- 1051. READING SKILLS.** (2 cr; prereq △)  
Development and practice of efficient reading techniques; emphasis placed on vocabulary, comprehension, and a flexible reading rate.
- 1052. WRITING SKILLS.** (3 cr, §Engl 1106; prereq △)  
Comprehension and practice of basic mechanical, grammatical, usage, and organizational writing skills.

- 1053. MATHEMATICS SKILLS.** (2 cr, \$Math 1110, \$Math 1160, \$Math 1185; prereq  $\Delta$ )  
Individualized approach to the learning or relearning of basic mathematics skills.
- 1054. STUDY SKILLS.** (2 cr; prereq  $\Delta$ )  
Introduction to general study skills and attitudes, including time usage, test wiseness, note taking, motivation, concentration, text reading, and library usage.
- 1101. PERSONAL DISCOVERY AND GROWTH.** (3 cr, \$Psy 1501; prereq  $\Delta$ )  
Introduction to some of the components of the human personality and the relationship of the individual to the environment. Primary focus on such topics as human relations, values, interpersonal skills and competencies, decision making, and conflict resolution.

## THEATRE (Th)

(SFA)

### HISTORY AND DRAMATIC LITERATURE

- 1500. INTRODUCTION TO THEATRE ARTS.** (4 cr)  
Appreciation of theatre arts: stage and film. Development of sensitivity and critical sophistication as articulate, discriminating theatregoers. Film and play viewing, play reading, critiques, and term projects.
- 1550. AMERICAN THEATRE HISTORY.** (4 cr, \$1535; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of the theatre in America from colonial times to the present.
- 3171. INDEPENDENT STUDY.** (1-3 cr [may be repeated for a max of 6 cr...undergraduates may not take more than 6 cr in both 3171 and 5171 combined]; prereq #)  
Directed readings and projects of interest to the student.
- 3551. HISTORY OF THE THEATRE I.** (4 cr; prereq 1500 or #; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of the theatre in Western civilization from its origins through Spain's "Golden Age."
- 3552. HISTORY OF THE THEATRE II.** (4 cr; prereq 1500 or #; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of the theatre in Western civilization from Elizabethan England through German romanticism.
- 3553. HISTORY OF THE THEATRE III.** (4 cr; prereq 1500 or #; offered when feasible)  
Religious, social, political, and artistic forces that have contributed to the development of the theatre in Western civilization during the 19th and 20th centuries.
- 3555. CONTEMPORARY THEATRE.** (4 cr; prereq 1500 or #)  
Religious, social, political, and artistic forces that have contributed to the development of theatre in Western civilization in the last 2 decades.
- 5171. INDEPENDENT STUDY.** (1-3 cr [may be repeated for a max of 6 cr...undergraduates may not take more than 6 cr in both 3171 and 5171 combined]; prereq sr and  $\Delta$ )  
Directed readings and projects of interest to the student.
- 5555. DRAMATIC THEORY AND CRITICISM.** (4 cr; offered when feasible)  
Survey and analysis of selected writings on the structure and aesthetic values of dramatic literature through the medium of performance.
- 5561. SEMINAR IN THEATRE.** (3 cr [may be repeated for a max of 9 cr]; prereq jr and  $\Delta$ ; offered when feasible)  
Directed study and preparation of papers and/or projects on subjects of current interest. Subjects to be announced prior to registration.

### ACTING

- 1110. ACTING: FUNDAMENTALS.** (4 cr, \$1610; prereq #; 3 hrs lect, 3 hrs lab)  
Designed to develop ability to respond to imaginative situation with sincerity, individuality, and effectiveness; projects in elementary stage technique.
- 1111. ACTING: CHARACTERIZATION.** (4 cr, \$3612; prereq 1110 or 1610; 3 hrs lect, 3 hrs lab)  
Theory and technique of character development.
- 1112. ACTING: IMPROVISATION.** (4 cr; prereq 1110 or 1610; 3 hrs lect, 3 hrs lab)  
Theory, exploration, and practice of improvisational techniques used to develop characters and performance pieces; presentations of projects before an invited audience.
- 1118, 3118. ACTING: PRACTICUM.** (1-2 cr each [may be repeated for a max of 10 cr in both courses combined]; prereq #)  
Rehearsal and performance of a role in a play before a public audience.



## Course Listings

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- 1119, 3119. ACTING: SCENE STUDY.** (1 cr each [may be repeated for a max of 6 cr in both courses combined]; prereq 1110 or 1610)  
Rehearsal and performance of roles from selected scenes before an invited audience.
- 3111. ACTING: SHAKESPEARE.** (4 cr; prereq 1111 or 1610; 3 hrs lect, 3 hrs lab)  
Exploration of acting problems in Shakespearian drama; rehearsal and performance of roles from selected scenes before an invited audience.
- 3113. ACTING: CLASSIC STYLES.** (4 cr; prereq 1111 or 1610; 3 hrs lect, 3 hrs lab)  
Exploration of acting problems in performance of dramatic works from the Greeks, Commedia dell'Arte, and the French and English Renaissance; rehearsal and performance of roles from selected scenes before an invited audience.
- 3114. ACTING: CONTEMPORARY STYLES.** (4 cr; prereq 1111 or 1610; 3 hrs lect, 3 hrs lab)  
Exploration of acting problems in contemporary plays; rehearsal and performance of roles from selected scenes before an invited audience.
- 3115. ACTING: AUDITIONS.** (3 cr; prereq 1111 or 1610 and #)  
The theories, techniques, and realities of auditions; presentation of at least four audition pieces before an invited audience.

## COSTUME DESIGN

- 1440. COSTUME DESIGN I.** (4 cr, §1650; prereq 1500 or #)  
The study and practice of the basic steps used in costume construction for the theatre, from patterns through final ornamentation.
- 1450. STAGE MAKEUP I.** (3 cr, §1659)  
An introduction to the principles and practice of stage makeup.
- 3441. HISTORIC DRESS FOR THE STAGE I.** (4 cr; prereq 1500; offered when feasible)  
Sources of theatrical costume design from Egyptians to the Renaissance.
- 3442. HISTORIC DRESS FOR THE STAGE II.** (4 cr; prereq 1500; offered when feasible)  
Sources of theatrical costume design from the Renaissance to the present.
- 3444. COSTUME DESIGN II.** (4 cr, §3651; prereq 1440 and 1500 or 1650 or #)  
Principles and practice of costume design with emphasis on designing and rendering costumes from various historical periods.
- 3445. COSTUME DESIGN III.** (4 cr; prereq 3444 or 3651; offered when feasible)  
Advanced principles and practice of costume design with emphasis on designing and rendering costumes from various historical periods.
- 3450. STAGE MAKEUP II.** (4 cr, §3659; prereq 1450 or 1659)  
Advanced study and application of stage makeup, and makeup design.

## DESIGN AND TECHNICAL

- 1330. STAGECRAFT.** (4 cr, §1620)  
Principles and practice. Planning, construction, painting, and shifting of stage scenery. Practical production experiences.
- 1331. SCENERY CONSTRUCTION AND PAINTING.** (4 cr; prereq 1330 or 1620 or 3625, and 1500; 3 hrs lect, 3 hrs lab)  
The construction, painting, and rigging of stage scenery.
- 1335. SOUND FOR THE THEATRE.** (2 cr, §3636)  
Principles and practice of choosing, editing, and running sound cues for theatrical productions. Practical production experience.
- 1339. SCENIC DESIGN SPECIAL PROJECTS.** (2-4 cr [may be repeated for a max of 6 cr]; prereq #)  
Selected projects in scene design executed before a public audience.
- 3331. SCENIC DESIGN I.** (4 cr, §3640; prereq 1330 or 1620)  
The study of the elements of design used in the creation of scenery for the theatre.
- 3332. SCENIC DESIGN II.** (4 cr, §3645; prereq 3331 or 3640)  
Theory and practice in the use of light and space to create a practicable, well-composed, and expressive environment for the produced playscript. Designing for proscenium and arena stages.
- 3333. SCENIC DESIGN III.** (4 cr; prereq 3332 or 3645)  
Advanced theories and techniques of scenic design for drama, dance, and lyric theatre.
- 3337. STAGE LIGHTING I.** (4 cr, §3637)  
Principles and practice of stage lighting. Practical production experience.

- 3338. STAGE LIGHTING II.** (4 cr; prereq 3337 or 3637)  
Advanced theories and techniques used in designing lights for traditional and nontraditional theatre works.
- 5339. SCENIC DESIGN SPECIAL PROJECTS.** (2-4 cr [may be repeated for a max of 6 cr]; prereq #)  
Selected projects in scene design executed before a public audience.

## DIRECTING

- 3221. STAGE DIRECTION I.** (4 cr, §3665; prereq 1110 or 1610; 3 hrs lect, 3 hrs lab)  
Theories and technique of stage direction; analysis of plays; preparation of production plan; practice in stage direction; production of scenes before an invited audience.
- 3222. STAGE DIRECTION II.** (4 cr, §3666; prereq 3221 or 3665; 3 hrs lect, 3 hrs lab)  
Advanced theories and techniques of stage direction; problems of style and characterization, production of scenes before an invited audience.
- 3223. STAGE DIRECTION III.** (4 cr; prereq 3222 or 3666; 3 hrs lect, 3 hrs lab)  
Advanced theories and techniques of stage direction; problems of verse and period dramatic literature; production of scenes before an invited audience.
- 3229. DIRECTING: SCENE STUDY.** (1 cr [may be repeated for a max of 6 cr]; prereq 3221 or 3665)  
Rehearsal and performance of selected scenes before an invited audience.
- 3615. DIRECTING AND ACTING FOR TV.** (3 cr; prereq 1610, 3665; offered when feasible)  
Building on principles of stage direction and acting, the course will help students develop skills in adapting theory and techniques for the small screen.
- 5220. DIRECTING: SPECIAL PROJECTS.** (2-4 cr; prereq 3223 and #)  
Direction of a long one-act or full length play for public performance.

## GENERAL

- 1600. PLAY PRODUCTION.** (4 cr; prereq 1500)  
The theory and organization of play production and the responsibilities of those involved.
- 1660, 3660. THEATRE ARTS AND CRAFTS LABORATORY.** (1 cr each [may be repeated in different areas for a max of 6 cr in both courses combined], §1502, §3502; 30 hrs minimum time)  
Practice in various areas of arts and crafts of theatre, including construction and painting of scenery and properties, stage operation, lighting, sound, costuming, makeup, publicity, and business management.
- 1690. THEATRE PRODUCTION.** (4 cr; prereq  $\Delta$ ; offered summer only)  
Intensive study of all aspects of theatre arts through participation in the UMD Summer Theatre.
- 1695. SUMMER THEATRE COMPANY I.** (6 cr; prereq 1500 and  $\Delta$ ; offered summer only)  
A concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance.
- 3661. PRODUCTION MANAGEMENT.** (2 cr [may be repeated for a max of 6 cr], §3611; prereq #)  
Participation in management and leadership in all areas of theatre production.
- 3685. SECONDARY SCHOOL PLAY PRODUCTION.** (4 cr; offered when feasible)  
For students preparing to teach drama in high schools. All phases of theatrical production will be studied through the rehearsal and performance of a selected play.
- 3690. THEATRE PRODUCTION II.** (4 cr; prereq sr, 3222 or 3666 and #; offered when feasible)  
Advanced problems in school and community theatre management; special problems assigned to individual students.
- 3695. SUMMER THEATRE COMPANY II.** (6 cr [may be repeated for a max of 12 cr]; prereq 1695 and  $\Delta$ ; offered summer only)  
A concentrated workshop experience in supervision and leadership in specialized aspects of theatre production through participation in rehearsal and performance.
- 3900. INTERN TEACHING IN THEATRE.** (3 cr; prereq speech/theatre or theatre major and  $\Delta$ )  
Practical experience in the teaching of beginning courses in the department. Students will serve as intern teachers, assisting the instructor in the administration of the course.
- 5175. TOPICS IN THE THEATRE: (Various Titles To Be Assigned).** (1-6 cr each offering [may be repeated for a max of 12 cr; not more than a total of 6 cr can be applied to a Graduate School program]; prereq #)  
Intensive study of special topics falling outside the usual theatre courses. Topic to be announced prior to offering of the course.
- 5600. SUMMER THEATRE COMPANY III.** (1-9 cr [may be repeated for a max of 9 cr]...1 cr for each 30 hrs of work; prereq  $\Delta$ ; offered summer only)  
An intensive (10 hrs per day, 7 days per week) experience in all aspects of theatre production. The advanced student or in-service teacher may focus on the development of professional artistic skills.

## Course Listings

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- 5690. THEATRE WORKSHOP.** (4 cr; prereq #; offered when feasible)  
For in-service directors and advanced students preparing themselves to be drama teachers or to enter the theatre professionally; participation in all phases of selected plays; ways to improve stage facilities typically available to the high school drama teacher.
- 5695. THEATRE ORGANIZATION AND MANAGEMENT.** (4 cr; prereq #; offered when feasible)  
Theory and practice of theatre administration for the in-service teacher/play director or for the advanced theatre student with professional aspirations.
- 5900. INTERNSHIP IN PROFESSIONAL THEATRE.** (1-12 cr [no more than a total of 6 cr can be applied to a Graduate School program]...1 cr for each 30 hrs of work; prereq completion of core program in BFA theatre major and △)  
Field study in a cooperating professional commercial or regional repertory theatre.

## UNIVERSITY COLLEGE (UC)

- 0300. VOLUNTARY SERVICE DELIVERY: STUDENTS' COLLEGE.** (No cr; 1 hr per wk required)  
Designed to give students the opportunity to do volunteer work as a part of their education.
- 1301. HUMAN SERVICES DELIVERY: STUDENTS' COLLEGE.** (Cr ar to cumulative max of 15 cr; prereq #)  
Experiential education in on- and off-campus service agencies under faculty supervision.
- 3075. INDEPENDENT STUDY.** (3-15 cr)  
Interdisciplinary independent study in an area not covered in normal course offerings, typically involving off-campus resources and experiences.
- 3300. PREPARING FOR HUMAN SERVICE DELIVERY: STUDENTS' COLLEGE.** (0-15 cr; prereq #)  
Background information for future experiential learning in human service delivery.
- 3301. STUDENTS' COLLEGE MANAGEMENT.** (3-15 cr; prereq ¶3311 and △)  
Management responsibility in Students' College human services programs or in support service divisions. Credit and grading is negotiated with Students' College Council and with faculty monitors.
- 3305. INTERNSHIP EXPERIENCE: STUDENTS' COLLEGE.** (1-15 cr; prereq #)  
Internship positions involving personnel work or administration in the area of human services. Projects include research, coordination and management, under supervision of faculty monitor.
- 3311. MANAGEMENT SEMINAR: STUDENTS' COLLEGE.** (1 cr; prereq ¶3301 and △)  
Seminar on topics in human services management particularly applicable to the Students' College. Course requirements set and students' work evaluated by Students' College faculty monitor.
- 3330. DIRECTED INSTRUCTION: STUDENTS' COLLEGE.** (1-5 cr; prereq #)  
Teaching experience under conditions outlined in contract with faculty monitor.
- 3341. DIRECTED RESEARCH: STUDENTS' COLLEGE.** (1-5 cr; prereq #)  
Research in various aspects of Students' College including program evaluation and program development, as contracted for with the Students' College Council and faculty monitor.

## VOCATIONAL EDUCATION (Voc)

(CE)

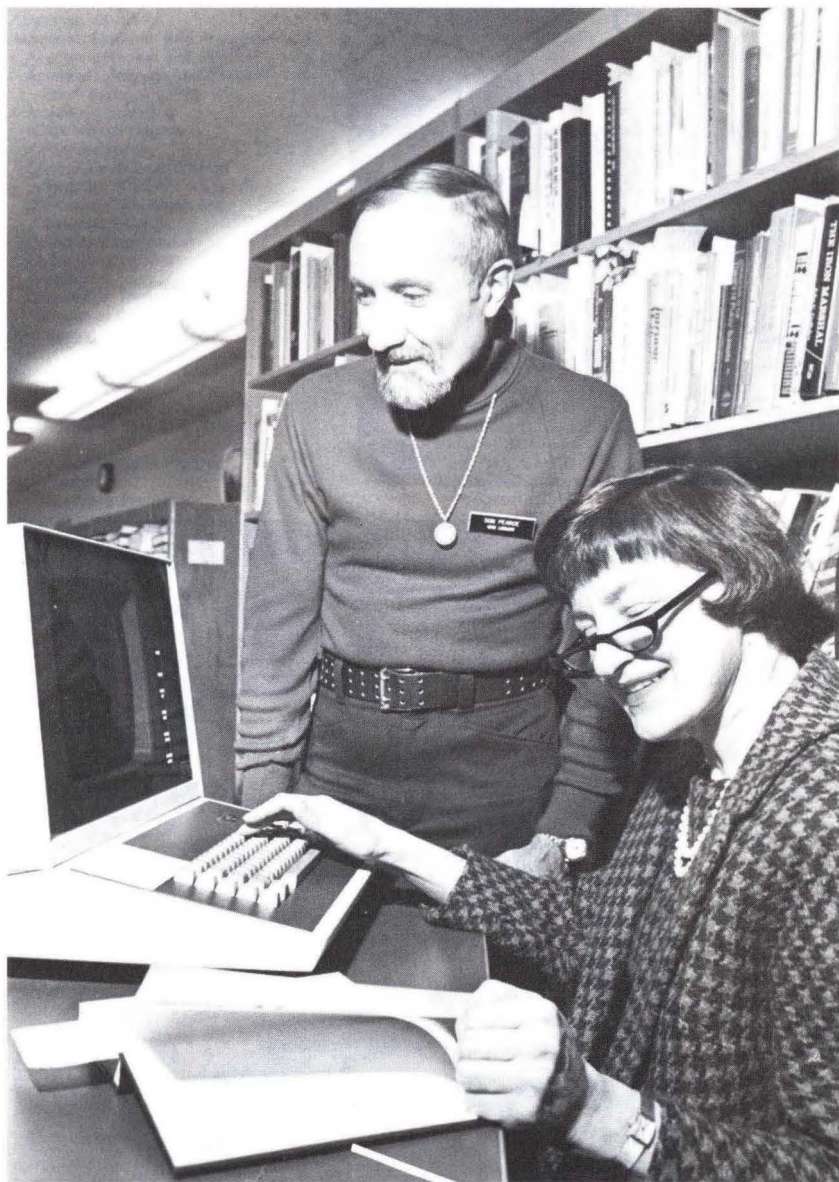
(Department of Industrial and Technical Studies)

- 5101. RECREATIONAL VEHICLE MAINTENANCE.** (1 cr [may be repeated for a max of 3 cr]; not available for Graduate School cr; prereq in-service instructor or #; offered through Continuing Education and Extension only)  
Areas of study will include the fundamentals of engines and drive trains incorporated in recreational vehicles.
- 5102. AUTOMOTIVE EMISSION CONTROL.** (1 cr; not available for Graduate School cr; prereq in-service instructor or #; offered through Continuing Education and Extension only)  
A study of the chemistry of automotive emissions and the devices used to help control these emissions.
- 5103. ARMED SERVICES CAREER SEMINAR.** (2 cr; not available for Graduate School cr; prereq in-service counselor/educator or #; offered summer only through Continuing Education and Extension)  
An instructional program designed to provide counselors and educators with factual information on career opportunities, benefits, and training available to young people entering the military.
- 5900. VOCATIONAL TEACHING PROGRAM.** (3 cr [may be repeated for a max of 9 cr], §Ind 5921, §Ind 5922, §Ind 5929; prereq in-service instructor or #; offered when feasible)  
A competency-based instructional program for in-service vocational teachers that includes elements of analysis, course organization, instructional methods, and evaluation taught on a sequential modular schedule.



**5901. VOCATIONAL IN-SERVICE INTERNSHIP.** (6 cr; not available for Graduate School cr; prereq in-service instructor and completion of preservice workshop)

A 9-week instructional internship for new non-vocational degreed secondary vocational teachers that meets the certification requirement of the Minnesota Plan for Vocational Education.





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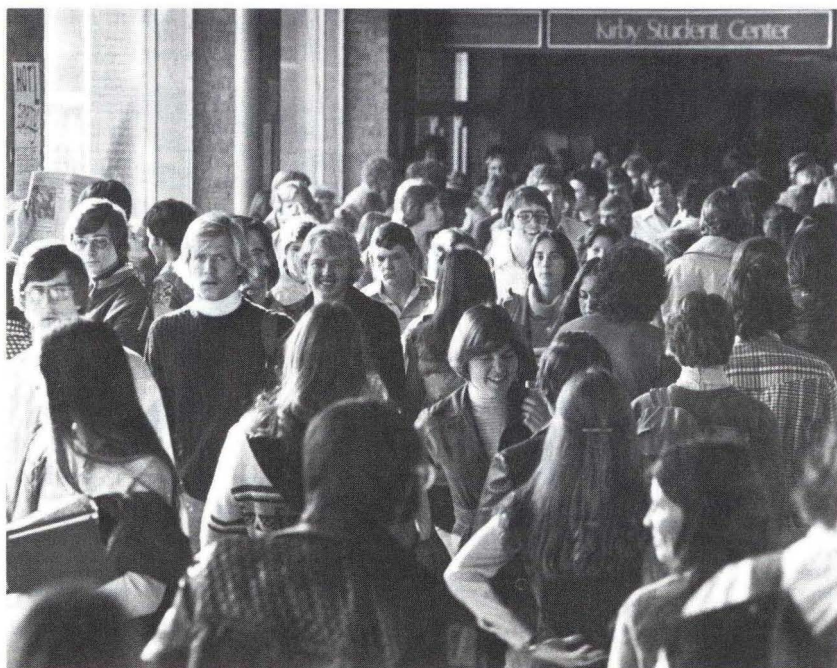
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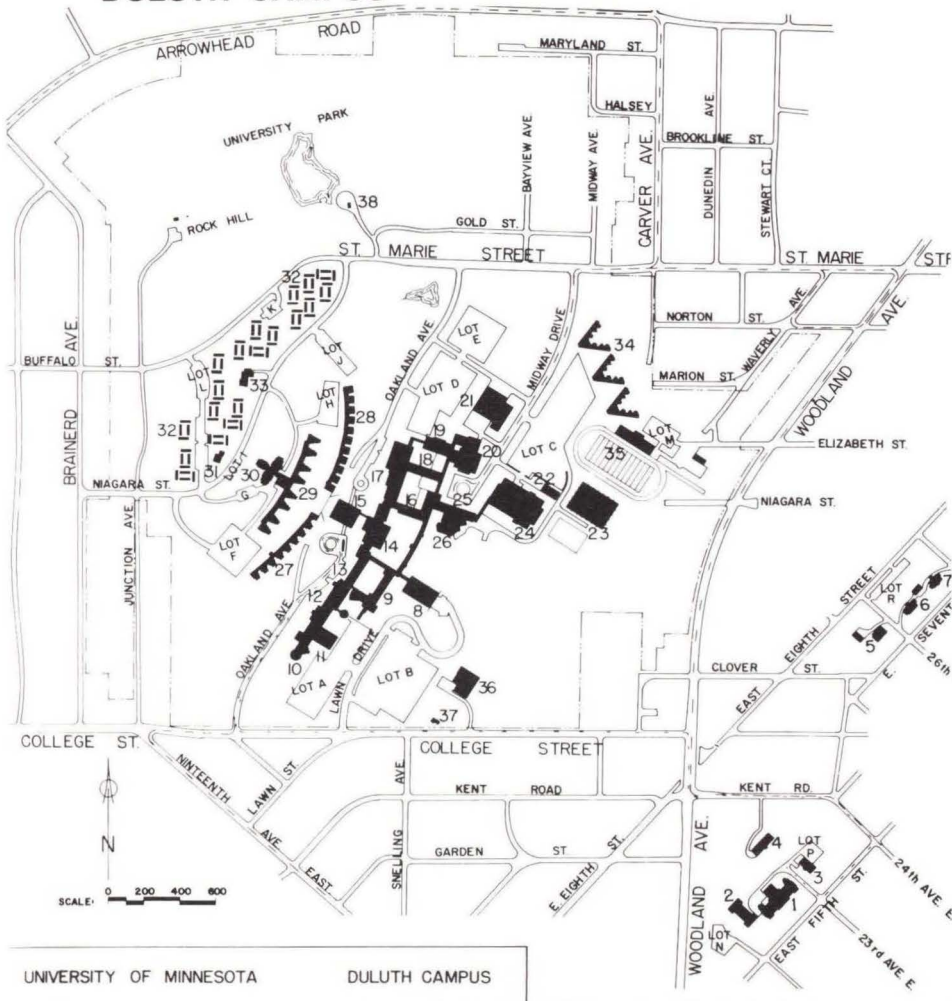








# DULUTH CAMPUS



## LEGEND

- |                                     |                                      |                                  |
|-------------------------------------|--------------------------------------|----------------------------------|
| 1. OLD MAIN                         | 16. SOCIAL SCIENCE                   | 30. LAKE SUPERIOR HALL           |
| 2. SCHOOL OF MEDICINE               | 17. LIBRARY                          | 31. HEALTH SERVICE               |
| 3. WASHBURN HALL                    | 18. BOHANNON HALL                    | 32. THE VILLAGE APARTMENTS       |
| 4. TORRANCE HALL                    | 19. HOME ECONOMICS                   | 33. VILLAGE SERVICE CENTER       |
| 5. PROVOST'S RESIDENCE              | 20. MARSHALL PERFORMING ARTS CENTER  | 34. STADIUM APARTMENTS           |
| 6. ALWORTH APARTMENTS               | 21. INDUSTRIAL EDUCATION             | 35. STADIUM & GRIGGS FIELD       |
| 7. ALWORTH HOUSE                    | 22. R.O.T.C.                         | 36. LUND PLANT SERVICES BUILDING |
| 8. ADMINISTRATION                   | 23. PHYSICAL EDUCATION FIELD HOUSE   | 37. DRUG INFORMATION CENTER      |
| 9. CHEMISTRY                        | 24. PHYSICAL EDUCATION               | 38. SKI CHALET                   |
| 10. MARSHALL W. ALWORTH PLANETARIUM | 25. HUMANITIES & TWEED MUSEUM OF ART |                                  |
| 11. MARSHALL W. ALWORTH HALL        | 26. A.B. ANDERSON HALL               |                                  |
| 12. LIFE SCIENCE                    | 27. VERMILION HALL                   |                                  |
| 13. MATHEMATICS-GEOLOGY             | 28. BURNTSIDE HALL                   |                                  |
| 14. KIRBY STUDENT CENTER            | 29. GRIGGS HALL                      |                                  |
| 15. RESIDENCE HALL DINING CENTER    |                                      |                                  |



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